NECESSARY EQUIPMENT

You will need the following items to use your SuperSequencer ST:

1. SuperSequencer ST Master Disk with Hardware Key
2. A blank disk for your data
3. Atari 520 or 1040 ST Computer with disk drive and monitor (color or black & white)
4. One or more electronic music synthesizers with MIDI capability
5. Audio playback system
6. Assorted connecting cables

IMPORTANT: SuperSequencer will not function properly unless the Hardware Key is correctly inserted into the Cartridge Slot of your ST. ALWAYS INSERT THE KEY WITH THE POWER OFF and make sure the side labeled "This Side Up" is facing upwards.

1. Make sure your Atari ST, disk drive, and video monitor are installed and operating properly.

2. Make sure the synthesizer(s) and audio system are also installed and working properly.

3. Using standard MIDI cables (5-pin DIN), connect the MIDI OUT jack on your Atari ST to the MIDI IN jack on your synthesizer; then connect the MIDI OUT jack on your synthesizer to the MIDI IN jack on the computer. If you are using more than one synth, connect the MIDI THRU jack on your main synthesizer to the MIDI IN jack on your 2nd synth, the MIDI THRU jack on the 2nd to the MIDI IN on the 3rd, etc.

4. IMPORTANT: WITH THE POWER OFF, insert the Sonus hardware key in the Cartridge Slot of your ST. BE SURE the side labeled "This Side Up" actually is facing up. If you try to insert the key with power on to the computer or with the key upside down, SERIOUS DAMAGE to your computer or to the key may result.

   If you skip this step (omit inserting the hardware key), you can still boot a DEMO version of SuperSequencer.

5. Turn on the power to your Atari ST, monitor, and disk drive.

6. IMPORTANT: BEFORE YOU USE SUPERSEQUENCER THE FIRST TIME, make one or two back-up copies of your SuperSequencer ST Master Diskette onto another floppy diskette or onto a hard drive, if available (see your ST Owners' Manual if you don't know how to do this). Then put your SuperSequencer ST Master Diskette in a safe place and use the backup to boot the program. Disk drives have been known to eat diskettes - if you back up FIRST, you won't wind up having to pay Sonus for a duplicate copy of your SuperSequencer Master Diskette. If you damage your factory diskette and haven't made a backup, the factory will charge you $25.ØØ for a replacement.

7. Insert your SuperSequencer ST Master Diskette (backup) into the disk drive and, from the desktop, double-click the left mouse button on the FLOPPY DISK A icon (assuming you put the disk in drive A) to see the contents of your SuperSequencer ST Master Diskette (backup).

8. Now double-click the left mouse button on the icon labeled "SONUS.PRG"; your SuperSequencer ST will start to load.

9. When your computer has finished loading SuperSequencer ST, you will see SuperSequencer ST's Main Screen (Fig. 1). Remove your Master Diskette (backup). You are now ready to use your SuperSequencer ST.

IMPORTANT: The Hardware Key MUST be inserted into the Cartridge Slot on your ST for SuperSequencer to operate properly (see Step 4).

IMPORTANT: Regarding Atari "THRU" and MIDI Cables: There is a hardwired "Thru" function (which sends incoming MIDI data out of the MIDI Out) on your ST which may cause some problems when used with certain "MIDI" cables. Atari's "Thru" function appears not to be in conformance with the MIDI Specification and when used in combination with the wrong MIDI cables may result in garbled MIDI data. If you suspect this is happening, disconnect pins 1 and 3 on the connector at the end of the MIDI cable attached to the MIDI Out jack on your ST (having these pins connected violates the MIDI spec).

PART ONE - SEQUENCE MODE

CHAPTER ONE

Introduction to SuperSequencer ST

Welcome to the versatility and ease of SuperSequencer ST from Sonus. We hope you enjoy many hours of music-making with this exceptional product. If you have owned your Atari ST computer for any length of time, you are already aware of the ease of use which the Mouse-based GEM operating system provides; you may find that your SuperSequencer is so easy to use that you are tempted not to read your entire Owners' Manual. This would be a mistake; any time spent studying this manual will more than pay for itself in time saved down the road. If you are unfamiliar with the GEM operating system, you should consult your Atari ST owners' manual.

After you have loaded your SuperSequencer ST, your monitor's screen should look like this:

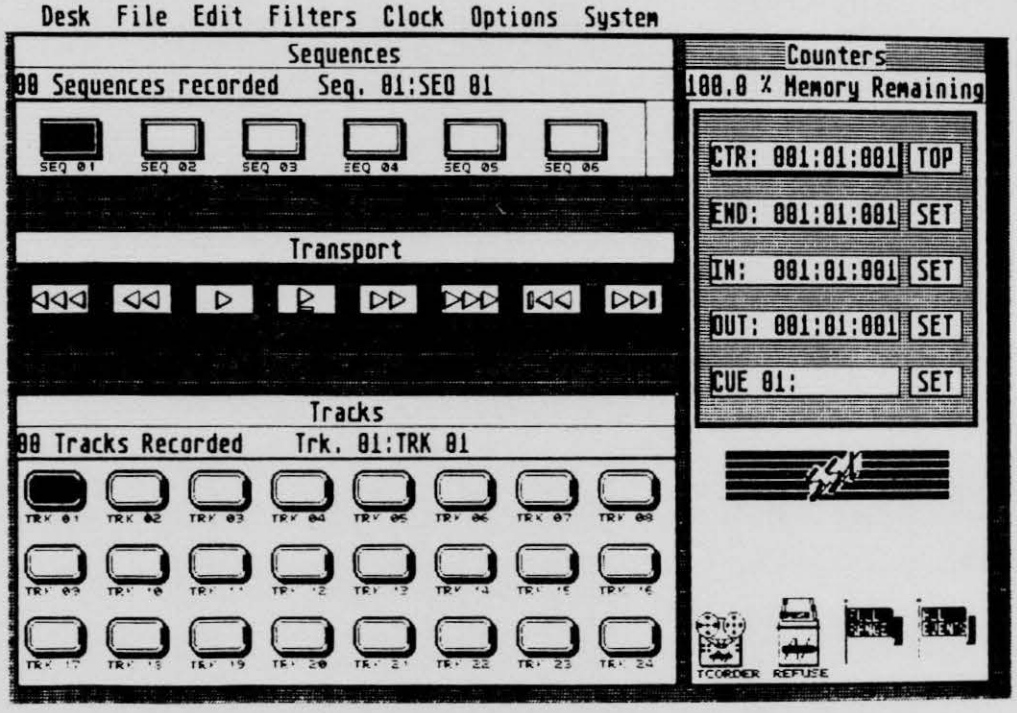

Fig. 1 - SuperSequencer ST: MAIN SCREEN

Notice the Menu Bar in the top line of your screen labeled "Desk File Edit Filters Clock Options System". As in all GEM applications, moving the Mouse Pointer onto any of these labels will activate a corresponding pull-down menu. These menus make it easy to start using SuperSequencer right away. In SuperSequencer, menu selections whose labels are followed by three periods ("...") initiate a process when you click on them with the left Mouse button. Selections without the periods are Flags (a type of software switch) which are turned ON (indicated by a check mark) or OFF (blank) by clicking on them with the left Mouse button. Many menu selections can also be activated by pressing a key on your Atari ST keyboard - these selections show the corresponding key (displayed in upper case if the SHIFT key is required) in brackets to the right of the label on the menu itself.

The functions available from each menu will be discussed in detail in separate chapters. The following explanation of some of SuperSequencer's most basic functions should help you get started making music quickly.

SuperSequencer is a Song-oriented sequencer which allows you to chain together Sequences in any order you choose. Each of these Sequences is made up of twenty-four Tracks which play back simultaneously. Recording of MIDI data (your music) is done at the Sequence level one Track at a time. When you Record, you will Record the current Track within the current Sequence (both indicated by black icons). Some editing features will affect only the current Track while others will affect the entire Sequence; these two types of Edits are neatly separated on the Edit Menu.

The Main Screen is made up of four permanent windows which are selected (made active) like any other GEM window (by clicking the left Mouse button within the window), and when active their Move Bars turn gray like other GEM windows. Unlike other windows, however, these windows cannot be moved, re-sized, or taken down off the screen (closed); they are permanent features of your SuperSequencer ST Main Screen.

The window in the upper left of the screen labeled "Sequences" contains the icons for the eighteen Sequences displayed six at a time. To select a Sequence for Recording or Editing, simply move the Mouse Pointer (using the Mouse itself or the Alternate key along with the Cursor keys) to the rectangular icon which represents the Sequence you wish to select and press the left Mouse button. The icon will turn black and the various data displays will update to reflect the information for the Sequence you have chosen. To select a Sequence which is not currently visible in the Sequence window, move the Mouse to the Scroll Bar at the right of the window and click the left Mouse button on either the up arrow or the down arrow, as required. Sequences can also be selected from the Atari keyboard by holding down the SHIFT key and pressing either "<" or ">" to move the currently selected Sequence either one to the left or one to the right.

The window in the lower left of the screen labeled "Tracks" contains the icons for the twenty-four Tracks. To select a Track (within the current Sequence) for Recording or Editing, move the Mouse Pointer to the round-cornered icon which represents the Track you wish to select and press the left Mouse button. The icon will turn black, indicating that it is the currently selected Track; any Recording or TRACK editing you do will be done to this currently selected Track. Tracks can also be selected from the Atari keyboard by pressing either "<" or ">" (without the SHIFT key) to move the currently selected Track either one to the left or one right.

The small window in the middle left of the screen labeled "Transport" contains icons which allow you to Record, Playback, Fast Forward, Rewind, and move to programmable Cue points using the Mouse. The selected function will turn black, giving you a visual confirmation of the current Transport status. All of the Transport functions can also be activated from the Atari keyboard: Record by pressing "/", Playback by pressing the SPACE BAR, Fast Forward by pressing "+" and/or SHIFTed "+", and Rewind by pressing "-" and/or SHIFTed "-".

The window at the right of the screen labeled "Counters" contains several important indicators which give you information about the status of your SuperSequencer ST:

- At the top of the window, the "Memory Remaining" indicator lets you know what percentage of Sequence memory is available for recording.

- The "CTR" counter displays the current Transport position within the Sequence; the "END" counter shows the length of the current Sequence; The "IN" and "OUT" counters are used to define a "Range" for Editing or AutoPunching. These four counters are key to your use of SuperSequencer and will be discussed in greater detail later.

- The "CUE" counter allows you to set a point (in time) within the Sequence for later recall; SuperSequencer supports twenty-five different Cue points for your convenience.

- Underneath the SuperSequencer logo is a space (now blank) called the "Command Line" which will be used to indicate the last operation you performed.

At the bottom of the "Counters" window are four icons:

- The "Tracorder" is a "scratch-pad" Sequence for sketching, editing, etc.; it is actually an extra (nineteenth) Sequence with the limitation that it cannot be used as a part of a Song.

- The "Refuse" icon is the SuperSequencer equivalent of the GEM trash can. Drag Tracks or Sequences to the "Refuse" can to Erase them.

- The "All Events Flag" icon indicates the status of the All Events Flag used extensively in editing operations (see Chapter Three - The Edit Menu). In addition to showing the status of the All Events Flag the Flag's state may be toggled by clicking on this icon (if the icon is Black the Flag is ON - if the icon is white the Flag is OFF).

- The "Full Range Flag" icon indicates the status of the Full Range Flag used extensively in editing operations (see Chapter Three - The Edit Menu). In addition to showing the status of the Full Range Flag the Flag's state may be toggled by clicking on this icon (if the icon is Black the flag is on - if the icon is white the Flag is off).

Tracorder

The Tracorder (represented by the tape recorder icon in the lower right portion of the screen) is essentially another 24-Track Sequence (Sequence 25 for the purpose of edit operations). There are two important differences between the Tracorder and the other Sequences:

1) The Tracorder (Sequence #25) cannot be specified as the Sequence to be played in a Song Element. Your Songs can play any of your 18 Sequences in any order, but CANNOT include the Tracorder.

2) Track 24 of the Tracorder is played as the Lead Track in Song Playback (see Chapter Eight). The Lead Track is one Track which can run the entire length of the Song and is intended for a melody, solo, or perhaps a drum Track. Song Playback plays any material in this Track whether or not you have put it there intending it as a Lead Track.

The Tracorder is meant to be used as a temporary editing buffer or "scratchpad" for Sequences; if you intend to use a Lead Track or have already Recorded one, be aware that the Lead Track is actually Track 24 of the Tracorder - any Sequence level Editing (e.g., Sequence Transpose or Erase) you do to the Tracorder will affect the Lead Track as well.

Recording Your First Track

For this explanation, select Track Ø1 in Sequence Ø1 (use the Mouse or the "<" and ">" keys with or without the SHIFT key as described above). Now start the Recording by clicking the left Mouse button on the Record icon (the right-pointing triangle with the dash underneath) or press "/" on the Atari keyboard. The Record icon will turn black and a metronome will sound through the speaker in your video monitor (make sure you have the volume up on your monitor). In the top line of the "Tracks" box you will see a message which reads:

RECORD ON! - Press Space Bar to STOP

Notice that while you are Recording or Playing back the Mouse Pointer disappears. This is because the Mouse requires a significant amount of the computer's time - while the computer is busy with the Mouse, incoming MIDI data could be lost.

Your SuperSequencer is now ready to Record on Track Ø1 of Sequence Ø1. To Record, all you need to do now is to play your synthesizer keyboard. As soon as you play a note, the middle numbers in the "CTR" counter will start to count, indicating that the recording has begun. Play a little music (four bars or so) and then press the SPACE BAR to stop. Notice that a square has appeared in the SEQ Ø1 icon and a circle has appeared in the TRK Ø1 icon; this indicates that Track Ø1 in Sequence Ø1 has been recorded. Move the Mouse Pointer to Sequence Ø2 and press the left Mouse button - the SEQ Ø2 icon will turn black and the TRK Ø1 icon will no longer have a circle in it. That is because Track Ø1 in Sequence Ø2 has not been recorded. Now move the Mouse Pointer back to the SEQ Ø1 icon and press the left button to select Sequence Ø1 again. Once again, the TRK Ø1 icon will have a circle in it, indicating it has been recorded. You can name the Sequence you have just recorded by double-clicking on the Sequence Ø1 icon; a dialog box containing information about this Sequence will appear in the middle of your screen. Press ESC to move the input cursor to the far left of the "Name:" field and enter the eight-character name you would like to assign to this Sequence and press RETURN or click the left Mouse button on the "OK" button in the dialog box.

The Counter Numbers

The counters in the "Counters" window are similar to the ones found on a conventional tape recorder, but count as follows:

Three left digits - Measure number
Two center digits - Beat number within the measure
Three right digits - Pulse number within the beat

The Measure, Beat, and Pulse displays are dependent on the Meter which you select (default is 4/4); SuperSequencer always records and plays back at a resolution of 192 Pulses per Quarter-Note (PPQN). Even when being driven by an external MIDI clock source running at 24 PPQN, SuperSequencer maintains its own internal resolution of 192 PPQN.

The "END" counter just below the "CTR" counter shows where the Sequence you just recorded ends. If you recorded exactly four bars the END counter should read "ØØ5:Ø1:ØØ1", meaning that when the Sequence playback reaches (reading from right to left) the first pulse of the first beat of the fifth measure it will stop (or loop immediately back to the beginning if you have set the "Play Loop" flag in the Clock menu - see Chapter 5). If nothing has been recorded, the END counter will read "ØØ1:Ø1:ØØ1" indicating that the Sequence has no length.

To play back the Sequence you just recorded make sure the recorded Sequence (the one with the square in its icon) is still selected (its icon should be black) and click on the Play icon (the single right-pointing triangle) or press the SPACE BAR. You should hear the Sequence playing back and see a message in the top line of the "Tracks" window which says:

PLAY ON! - Press Space Bar To STOP

Notice that the CTR counter is counting and the Mouse Pointer has disappeared. Press the SPACE BAR to stop the Sequence playback. Notice that the CTR counter returns to "ØØ1:Ø1:ØØ1"; every time you stop a Sequence Playback or Record, the CTR counter will automatically return to the beginning of the Sequence. This is designed for your convenience when working with Sequences of some length, but you can defeat this feature by UN-setting the "Auto Zero" flag found in the Clock menu. In this case, the CTR counter will remain at the point where it was when you pressed the SPACE BAR to stop the Playback or Record. You may prefer to work this way when setting the other counters or doing certain Editing functions.

If you have the Play Loop flag ON, you can choose to have SuperSequencer exit Playback automatically at the End of the Sequence by pressing F1 on your Atari keyboard during Playback.

Leaving the CTR counter at or near the beginning of the Sequence, now move the Mouse Pointer to another Track within the same Sequence and click the left button to select a new Track (or press the "<" or ">" keys WITHOUT the SHIFT key to select another Track). Then move the Mouse Pointer to the Record icon (the right-pointing triangle with the dash underneath in the "Transport" window) and press the left Mouse button (or press "/" on your Atari keyboard). Play a few notes on your synthesizer; you are now recording on the new Track in Sequence Ø1. If the Play Loop Flag is ON, SuperSequencer will keep looping until you play a Note (or other MIDI event) on your MIDI keyboard or press the SPACE BAR to stop recording. When you have played a Note (or more) and you reach the End of the Sequence, the recording will automatically stop and the CTR counter will return to "ØØ1:Ø1:ØØ1". You have just performed an "overdub". Notice that there is now a circle in the icon of the new Track, indicating it too has been recorded. Click on the Play icon (or press the SPACE BAR) to hear both Tracks playing back simultaneously.

Either while the Sequence is playing or when it has stopped, press "M" on your Atari keyboard followed by the number of one of the recorded Tracks (e.g., "1" in the above example). Notice the message "MUTE Ø1" in the Command Line below the SuperSequencer logo. Remember, the Command Line gives you information about SuperSequencer activities in progress or just completed. Now press RETURN; the Track icon will turn gray and if the Sequence is playing, you will no longer hear the material which was recorded on Track Ø1. You have just "Muted" Track Ø1. You can "Mute" and "Unmute" Tracks at any time with SuperSequencer. To "Unmute" the Track, simply press "M", then the Track number, then RETURN. You can "Solo" a Recorded Track by pressing "s", the Track number, and RETURN. "Mute Ø" un-mutes all Tracks. When you are not Recording or Playing back (and the Mouse Pointer is visible) you can also Mute or Solo the current Track from the Options Menu (see Chapter 6).

Note: When you re-record the first Track (the only Track recorded in the Sequence) the previously set End will be cleared so you won't be automatically exited from record at the old End time. If you want to preserve the previous End time drag (the only recorded) Track to the trash can before re-recording it.

Real Time Tempo Change [Cursor Right & Cursor Left]

While Recording or Playing back you can increase or decrease the Tempo of the Sequence by pressing the Cursor Right or Cursor Left key respectively on your Cursor keypad. IMPORTANT: Changing the Tempo of the Sequence during Playback or Record actually changes the Tempo setting of the Sequence. If you don't want the Sequence to have this new Tempo value you should change the Tempo back to the desired setting after exiting playback or record.

More About the Transport Controls

In the Transport window there are several icons with symbols which may be unfamiliar to you:

Play Icon - This is the icon containing the single right-pointing triangle. Click on this icon to initiate a Sequence or Song Playback.

Record Icon - This is the icon containing the single right-pointing triangle with the dash underneath. Click on this icon to initiate a Record operation in Sequence Mode; this icon is inactive in Song Mode.

Fast Forward (Pulses) Icon - This is the icon containing two right-pointing triangles. Click on this icon to increment the CTR counter position by one Pulse; hold down the left Mouse button on this icon to move the CTR counter rapidly forward by Pulses. Hold down SHIFT on your Atari keyboard and then hold down the left Mouse button on this icon to enable audio Playback while moving rapidly forward by Pulses.

Fast Forward (Beats) Icon - This is the icon containing three right-pointing triangles. Click on this icon to increment the CTR counter position by one Beat; hold down the left Mouse button on this icon to move the CTR counter rapidly forward by Beats. Hold down SHIFT on your Atari keyboard and then hold down the left Mouse button on this icon to enable Audio Playback while moving rapidly forward by Beats.

Rewind (Pulses) Icon - This is the icon containing two left-pointing triangles. Click on this icon to decrement the CTR counter position by one Pulse; hold down the left Mouse button on this icon to move the CTR counter rapidly backward by Pulses.

Rewind (Beats) Icon - This is the icon containing three left-pointing triangles. Click on this icon to decrement the CTR counter position by one Beat; hold down the left Mouse button on this icon to move the CTR counter rapidly backward by Beats.

Next Cue Icon - This is the icon containing two right-pointing triangles and a vertical bar. Click on this icon to move the CTR counter to the value set in the next Cue Point. Hold down SHIFT and click on this icon to select the next Cue Point for setting to the current CTR value. SuperSequencer allows you to "mark" 25 different points in time with 25 different Cue Points and then recall them by clicking on these icons.

Previous Cue Icon - This is the icon containing two left-pointing triangles and a vertical bar. Click on this icon to move the CTR counter to the value set in the previous Cue Point. Hold down SHIFT and click on this icon to select the next lower Cue Point for setting to the current CTR value.

The Atari ST keyboard equivalents for these icons are as follows:

Play - SPACE BAR
Record - SLASH ("/") KEY
Fast Forward (Pulse) - PLUS ("+") KEY (unSHIFTed)
Fast Forward (Beat) - PLUS ("+") KEY (SHIFTed)
Rewind (Pulse) - MINUS ("-") KEY (unSHIFTed)
Rewind (Beat) - MINUS ("-) KEY (SHIFTed)
Move to Next Cue Point - RIGHT BRACKET "]" KEY
Move to Previous Cue Point - LEFT BRACKET "[" KEY
Select Next Cue Point to SET - ")" (SHIFTed "]")
Select Previous Cue Point to SET - "(" (SHIFTed "[")

Click on the "TOP" button in the Counters window (or press BACKSPACE on your ST keyboard) to move the CTR counter to the Beginning of the Sequence; click on the END counter display (or press SHIFTed "E" on your ST) to go to the End of the Sequence.

More About the END Counter

The END counter displays the length of any recorded Sequence. In the case of an eight measure Sequence the END would read "ØØ9:Ø1:ØØ1", meaning that when the Sequence Playback or Record reaches the first pulse of the first beat of the ninth measure it has finished and either stops or loops back to the beginning of the Sequence. If you record the first (in time, not #Ø1) Track of a Sequence, by which SuperSequencer ordinarily determines the length of the Sequence, and fail to hit the SPACE BAR to stop recording at precisely the time you intended, you can still adjust the END of the Sequence. Using the Transport controls described above, move the CTR counter to the point where you want the END to be and then move the Mouse Pointer to the "SET" button just to the right of the END counter and press the left Mouse button to set the END.

SuperSequencer features non-destructive END setting. This means that you can set the END of a Sequence shorter than it was originally recorded, listen to it and decide to make it longer again. The material originally recorded after the new End just set will still be there to be recovered when you make the Sequence longer again. This allows you great flexibility when setting the length of your Sequences. If you need to find the actual end of the data within the Sequence, hold down SHIFT on your ST keyboard and click on the SET button to the right of the END counter. This will set the End to the point where the actual data in the Sequence ends.

Note: Sequences cannot have Ends set to shorter than one quarter note (192 pulses) because of restraints imposed by the Seam Manager (see Chapter Five). If you attempt to set an End shorter than a quarter note the command will be ignored. The only exception to this rule is Setting the End to ØØ1:Ø1:ØØ1. When the End is set to this value (the same End value that is posted when recording a first Track) the Sequence will play or record forever - as if it were infinite in length.

More About Cue Points

Cue Points are CTR counter points which you can save and then recall at a later time using the Cue Icons in the Transport window (the double right- and left-pointing triangles with the vertical bars). To set a Cue Point, first move the CTR counter to the value you wish to store in the Cue Point. Then hold down SHIFT on your Atari keyboard and with the Mouse select the proper Cue Point by clicking on the Cue Icons (or use the BRACKET "[" and "]" keys on your ST). Finally, you must click on the "SET" button (to the right of the "CUE nn:....." display in the Counters window) to actually set the Cue Point. The stored CTR counter value can be recalled at a later time by clicking on the Cue Icons (or using the BRACKET "[" and "]" keys on your ST) until the same Cue Point is reached. Cue Points default to ØØ1:Ø1:ØØ1 if they haven't been set. The settings of all 25 Cue Points are also saved when you save a Song.

Basic Track Operations - Bouncing, Copying & Erasing

You can COPY (or "BOUNCE") a recorded Track into another Track (or into another Sequence, for that matter) very easily using the Mouse. First, select the source Track by moving the Mouse Pointer to its icon and clicking the left Mouse button. Then press and hold down the left Mouse button; the Mouse Pointer will turn into a little hand and a rectangular dotted line will surround the icon (a "ghost icon"). Continuing to hold down the left Mouse button, you can use the Mouse to drag the source Track to the icon of the destination Track (or Sequence). Release the Mouse button when the hand is over the icon of the destination - that's all there is to it.

If you wish to Bounce a Sequence or a Track to a Sequence whose icon is not currently visible in the Sequences window, there are two alternatives. First, you can drag the Track or Sequence to the Tracorder (be sure the Tracorder is empty first), then scroll the Sequences window until the Destination Sequence's icon is visible, then drag the Tracorder or desired Track within the Tracorder to the Destination Sequence icon. The second alternative is to use the Append command in the Edit Menu to Append the Sequence in question directly to the Destination Sequence if the Destination Sequence is unrecorded (if the Destination Sequence is recorded, Appending to it will, of course, have an entirely different effect than Bouncing to it).

To ERASE a recorded Track, simply drag it to the trash can (labeled "REFUSE" on a monochrome monitor) in the lower right corner of your screen. IMPORTANT: Both of these operations depend upon the state of the "Full Range" and "All Events" flags: if both flags are ON (Flag icons Black and checked on the Edit menu), the operations will work as described above. If either flag is OFF (Flag icons White and not checked on the Edit menu), Copying or Erasing a Track will have different effects, depending on several other settings which will be discussed in detail in Chapters 3 and 4 on the Edit and Filters menus.

These operations (COPY or BOUNCE and ERASE) work in exactly the same way for Sequences as they do for Tracks. IMPORTANT: You CAN bounce a Track into another Sequence but you CANNOT bounce a Sequence into a Track.

Assigning a Track's Name, MIDI Channel(s), and Velocity

Now double-click the left Mouse button on the icon of the currently selected Track; a Dialog Box will appear in the middle of your screen (see Fig. 2); this Dialog is used to name the currently selected Track, to select its MIDI Channels, and to set its Velocity.

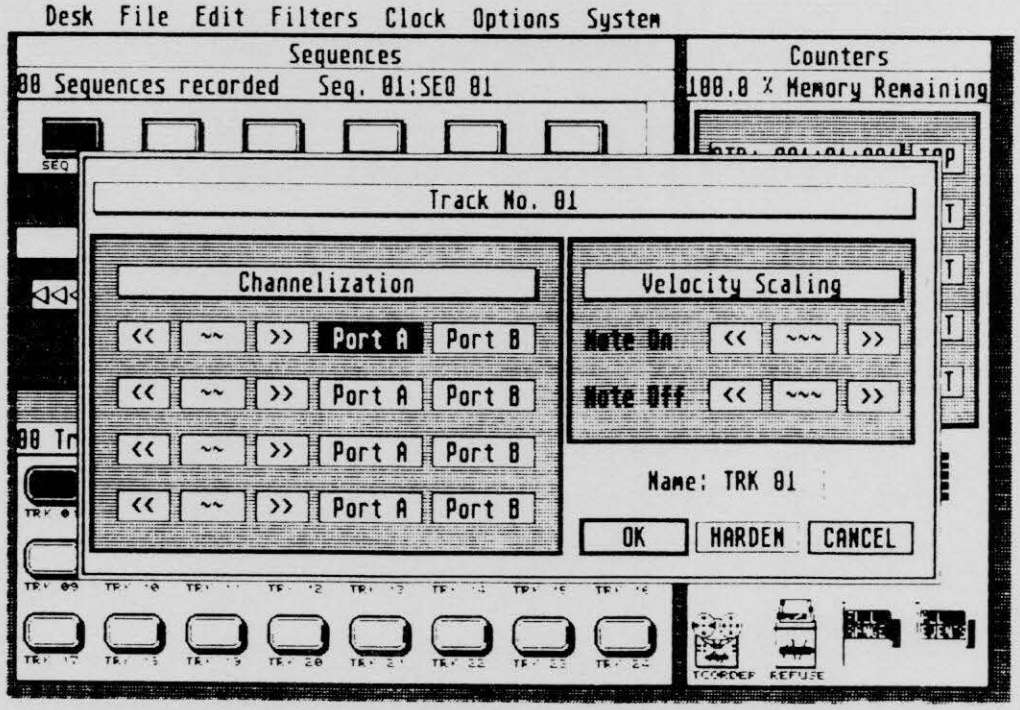

Fig. 2 - Track Name, Channel, & Velocity Dialog

To name the Track, press ESC to move the input cursor to the left of the field; enter any eight-character name you like.

SuperSequencer allows you to assign a Track to as many as four different MIDI Channels sent out over one or both of the two available MIDI Ports, giving you a choice of thirty-two MIDI Channels. Use this feature to send the Track to a synthesizer (or synths) receiving on a different MIDI Channel. When you assign a Channel to a Track all information in the Track is sent to the specified Channel during Playback or Record. You can assign a MIDI Channel number from 1 to 16 and send it out via either or both "Port A" and "Port B". IMPORTANT: To use Port B an optional piece of Sonus hardware is required.

To assign a MIDI Channel (or Channels) to a Track, move the Mouse Pointer to the scroll buttons in the "Channelization" box at the left of the Dialog. Use the left Mouse button to raise or lower the MIDI Channel Number through the range of available values (1 to 16). The "~~" in the Channel display indicates a "passive" setting which sends the Track's information out with exactly the Channel data which was recorded into it in the first place. "Port A" refers to the normal MIDI In and MIDI Out jacks on your ST. "Port B" (MIDI Out only) refers to the optional Sonus MIDI Interface hardware which hooks up to the Modem Port on your ST and effectively provides sixteen additional MIDI Channels. Select either or both Ports by clicking on their buttons in the Dialog Box with the Mouse. If neither Port is selected NO MIDI data will be sent.

If the first (top) Channelization setting is passive ("~~"), then SuperSequencer will not allow you to set any other Channelizations; if the first setting is set to a MIDI Channel number, then SuperSequencer will allow you to change the setting of the second one; once the second one is set you can change the setting of the third one, and so on. To send a Track to more than one Channel at once, you must set the Channelizations in a top to bottom order. If any one of the Channelization values, once set, is returned to the passive setting, all the Channelization values below it also will be returned to the passive setting.

SuperSequencer also allows you to set a playback Velocity scaling factor for each Track which will be used during playback to scale all of the Note On or Note Off Velocities within the Track. This scaling will make a difference only if you are using synthesizers which respond to MIDI Velocity data (such as a Yamaha DX7). With this scaling factor you can make a Track louder or softer, brighter or darker, depending on the patch in the synth. Velocity scaling leaves your accents in the Track, but either magnifies or diminishes them during playback according to the scaling. This playback Velocity scaling does not alter the Velocity data within the Track; it is a playback function only.

To scale the Velocity values of a Track's notes output during playback, move the Mouse Pointer to the scroll buttons in the "Velocity Scaling" box in the right of the Dialog. Use the left Mouse button to raise or lower the Velocity through the range of available values (-99 to +99). The positive values of +1 to +99 make the velocity greater (louder or brighter) and correspond to a scaling of x1.Ø1 to x1Ø.ØØ. The negative values of -1 to -99 make the velocity smaller (softer or darker) and correspond to a scaling of xØ.99 to xØ.Ø1. The "~~" in the Velocity Scaling display indicates a "passive" setting which will send the Track data out with exactly the Velocity values which are present in the Track.

When you have the Track Name, MIDI Channel assignments, and Velocity settings as you want them, use the Mouse to click on OK (or press RETURN) to exit from the Dialog Box. If you click on "CANCEL", all the Dialog Box settings you have just made will be forgotten and the previous settings will be restored.

HARDEN

The Channelization and Velocity scaling settings you make in the Track Name, Channelization, and Velocity Dialog are Playback over-rides. They are done in real time during Playback instead of actually changing the MIDI data in the Track. This means that when you move the Track (by Bouncing or Appending it) to another location, these settings will be moved with the Track only if the destination Track is empty. If you want these settings to be Bounced with the Track into another Recorded Track (in order to make a "sub-mix" of several Tracks, for example), first make them permanent within the (source) Track by clicking on the "HARDEN" button in the Track Name, Channelization, and Velocity Dialog. This will put your Velocity and Channel settings into the Track data so that when you do a Bounce or Append, the settings will stay with the Track.

You should be aware that MIDI allows only one Channel to be assigned to each individual Note event. If you have channelized the Track to more than one MIDI Channel, when you click on "HARDEN", SuperSequencer will duplicate the Track as many times as it needs to in order to send it to all the MIDI Channels you have specified. However, MIDI makes no provision for "Port A"/"Port B" distinctions, so you must manage those assignments yourself. In the case of multiple Channelizations, HARDEN will multiply the size of the Track by the number of MIDI Channels specified, and all Port assignments WILL BE LOST. Once HARDEN has finished putting your settings into the Track data, the settings in the Dialog will change to "passive", indicating the process has been complete.

There is also a "HARDEN" button in the Sequence Info Box (double-click on the Sequence icon to see this box) which does the same process for all recorded Tracks in the Sequence. You may want to use this Sequence HARDEN before appending the Sequence to another Sequence which may have different Channel and Velocity settings. If you have information Recorded in a Track or Sequence which you would like to "protect" from being Transposed, assign it to a Drum Channel (which you can set in the System Menu - see Chapter 7) and then HARDEN the Track or Sequence in question. This will put the Channel into the data itself, and thus allow it to be "protected" from Transpose operations.

By now you should have a good, general idea of how to use your SuperSequencer to record MIDI music. The following chapters will discuss in detail the various menu selections which make SuperSequencer ST such a powerful musical tool.

CHAPTER TWO

The Desk and File Menus

THE DESK MENU

About SuperSequencer

If you boot SuperSequencer ST by itself on your ST, the only selection on the Desk Menu will be "About SST...". Clicking the left Mouse button on this selection will show you SuperSequencer's "title page", with authorship and version number information.

If you have any desk accessories resident in your ST when you boot SuperSequencer, they will be listed as selections on the Desk Menu below the "About SuperSequencer" selection. GEM allows you to have as many as six desk accessories resident at the same time. These accessories, of course, use up space in computer memory that could otherwise be used for Sequence memory, so if you don't absolutely need a given accessory to be present while you are using SuperSequencer, boot without it. IMPORTANT: If you are using a 520ST and have several large desk accessories present, you may have almost NO room left for sequences. CHOOSE YOUR DESK ACCESSORIES CAREFULLY.

SuperSequencer ST will work well in conjunction with most ST desk accessories; however, there exists some potential for conflict with certain types of accessories:

1) Certain screen redraws in SuperSequencer are done without clipping the graphics output - specifically, the Counter displays, Command Line, and Track icons during muting operations. This minimizes drawing time to ensure playback timing accuracy. Some desk accessories (e.g., time-of-day clock displays) are intended to be left on the screen for your convenience. If the windows for these accessories are over one of the areas where fast updating is required by SuperSequencer, then these desk accessory windows will be drawn upon. This compromise is necessary to maintain a high standard of sequencer performance.

2) A logical and convenient desk accessory to use with a sequencer would be a MIDI utility such as a synth editor or librarian. Problems may result, however, because SuperSequencer does not use the Atari ST ROM routines for MIDI access, as they are TOO SLOW for the realtime requirements of a professional-level sequencer and are overwritten when SuperSequencer is loaded. This means the ROM routines are effectively "disconnected" from the system. Any MIDI desk accessory which contains its own direct hardware MIDI access code will still work; others won't.

THE FILE MENU

Clear Memory...

Use this selection to get rid of all MIDI data currently in memory, to start "from scratch". If you have been working on several Sequences and have either saved them to disk or run them off onto tape and you want to start with a clean palette, click the left Mouse button on "Clear Memory..." (or press SHIFTed "Q" on your Atari keyboard). This selection erases ALL Sequences and ALL Songs currently in the computer's memory, so BE VERY SURE that you have saved anything you wish to keep. If you click on "Clear Memory" a confirmation Dialog will appear; click on OK if you wish to Clear Memory.

Set Drive...

This selection allows you to change the currently selected disk drive (the one which will be used for your disk loads and saves); if you have more than one floppy disk drive or a hard disk, you will find this command extremely useful. The system checks to see which units are available and SuperSequencer displays them in black; UNavailable units are shown in gray. Even if you have only one disk drive hooked up, the ST system assumes availability of drive A and drive B; if you have only one drive hooked up, CHOOSE DRIVE A and ignore this menu selection.

Load Sequence...

Sequences that have been saved onto diskette using the Save Sequence command can be loaded into any Sequence slot using the Load Sequence command. To load a Sequence be sure the Sequence slot into which you wish to load is the currently selected Sequence (its icon should be black). Any recorded Sequence in this slot will be erased by the load, so you may want to first save it on diskette or select another Sequence slot into which to load the new Sequence.

Click the left Mouse button on "Load Sequence...". If a recorded Sequence exists in the currently selected slot you will be asked for a confirmation. A standard GEM file selector box will appear showing the Directory of the diskette in the currently selected drive. For Sequence disk loads and disk saves, SuperSequencer defaults to a file path of "A:*.SEQ" if drive A was used to boot the program. This means that the Directory will display only those files on the disk in drive A (the boot drive) which have the extension "SEQ". To see ALL files on the disk in drive A, click on the extension in the filepath and use the BACKSPACE key to edit the extension (the path should read "A:*.*") and then click on the Move Bar (the gray bar at the top of the Directory window in the Dialog Box).

Next double-click on the name of the Sequence file you wish to load. SuperSequencer checks to see if there is enough memory remaining to hold the new Sequence. If insufficient room is present, you'll have to make additional memory available before SuperSequencer will let you execute the load. There are several options for making more memory available - Erasing Tracks or Sequences, stripping unnecessary Aftertouch, Pitch Bend, or other continuous controller data out of a Track or Sequence, etc.

Save Sequence...

Clicking on "Save Sequence..." allows you to save the currently selected Sequence (whose icon is black). A standard GEM file selector box will appear showing the Directory of the diskette in the currently selected drive. For Sequence disk loads and disk saves, SuperSequencer defaults to a file path of "A:*.SEQ" (if drive A was used to boot the program). This means that the Directory will display only those files on the disk in drive A (the boot drive) which have the extension "SEQ". To see ALL files on the disk in drive A, click on the extension in the filepath and use the BACKSPACE key to edit the extension (the path should read "A:*.*") and then click on the Move Bar (the gray bar at the top of the Directory window in the Dialog Box).

If the Sequence you wish to save already exists as a filename on the diskette in the drive, double-click on its name in the directory; otherwise, enter the new filename in the space provided (SuperSequencer will automatically add the extension "SEQ") and press RETURN or click on OK. If the file already exists on the disk, you will be asked to confirm that you wish to replace it.

Sequences with no Tracks recorded but with an End Set to values greater than one beat can also be saved on disk. Such a Sequence is convenient to use to create "rests" in Songs.

Delete Seq...

Using the "Delete Seq..." command you can delete (scratch) unwanted Sequence files from your diskettes. To execute a Delete, click on "Delete Seq..." in the File Menu. When the Dialog Box appears, enter the name of the Sequence you would like to delete and press RETURN or click on OK. If a file with the same name exists on the diskette currently in the selected drive, you will be asked to confirm the Delete. Once a file is deleted, it cannot be recovered by SuperSequencer.

Format Disk...

Before any diskette can be used as a data diskette with SuperSequencer, it MUST be formatted. The "Format Disk..." command allows you to format old and new diskettes. Click on "Format Disk...". You will be asked to insert the disk you wish to format into the drive and to select single- or double-sided format. Do so and press RETURN or click on OK. You may then enter a name for the diskette. Just follow the prompts.

IMPORTANT: Formatting a diskette ERASES EVERYTHING on the diskette. MAKE SURE there is nothing you wish to keep on the diskette before you format it. The "Format Disk..." command may take as much as a minute to format an unused diskette. This operation can only be performed if either Drive A or Drive B is selected as the current Drive. You CANNOT use this command to format a Hard Disk Drive.

Quit

Exits you back to the Atari desktop; you will be asked for a confirmation.

CHAPTER THREE

The Edit Menu

Full Range [r]

"Full Range" is a flag which helps determine how much of a Track or Sequence will be Edited, Bounced, or Erased. A consecutive range (in time) is defined by the values to which you set the "IN" and "OUT" counters (using the Transport Controls to move the CTR counter to the desired location and then clicking on the "SET" button to the right of the counter you wish to set).

IMPORTANT: When the "Full Range" flag is ON (checked on the Edit Menu and "Full Range Flag" icon black at the bottom right of the screen), the entire Track or Sequence from beginning to end will be Edited, Bounced, or Erased. When the "Full Range" flag is OFF (blank), ONLY THAT PORTION of the Track or Sequence which is WITHIN THE RANGE defined by the IN and OUT counters will be Edited, Bounced, or Erased. This flag is fundamental to the powerful Editing capabilities of your SuperSequencer; you should be aware of its state (ON or OFF) at all times.

Simply click the left Mouse button on the "Full Range" selection at the top of the Edit Menu or click on the "Full Range Flag" icon at the bottom right of the screen to change the state of the flag. It can also be toggled on and off by pressing "r" on your Atari keyboard; whichever way you set it, the new state of the flag will be shown in the Command Line (just under the SuperSequencer logo at the bottom right of your screen) and reflected by the "Full Range Flag" icon (at the bottom right of the screen). Use this flag together with the IN and OUT counters to cut and paste large or small sections of Tracks or Sequences, to Transpose or Quantize only a piece of a Track, etc.

Note: The "Full Range Flag" icon at the bottom right of the SuperSequencer screen will always indicate the state of the Full Range Flag. If black, the Flag is ON - if white, the Flag is OFF. You can toggle the state of this Flag at any time by simply clicking on the icon.

All Events [e]

"All Events" is a flag which helps determine which data in a Track or Sequence will be Edited, Bounced, or Erased. As the Full Range flag (when OFF) allows the Edit Range to be defined by the IN and OUT counters, the "All Events" flag (when OFF) allows the Edit Filters (see Chapter Four) to determine which types of MIDI data will be Edited, Bounced, or Erased. When the "All Events" flag is ON (checked on the Edit Menu), ALL types of MIDI event data in the Track or Sequence will be Edited, Bounced, or Erased.

IMPORTANT: When the "All Events" flag is OFF (blank in the Menu and a white Flag icon at the bottom right of the screen), the types of MIDI events to be Edited, Bounced, or Erased will be determined by the settings of the Edit Filters. Like the Full Range flag, this flag is fundamental to the powerful Editing capabilities of your SuperSequencer; you should try to be aware of its state (ON or OFF) at all times.

Simply click the left Mouse button on the "All Events" selection at the top of the Edit Menu or click on the Flag icon at the bottom right of the screen to change the state of the flag. It can also be toggled on and off by pressing "e" on your Atari keyboard; however you do it, the new state of the flag will be shown in the Command Line (just under the SuperSequencer logo at the bottom right of your screen) and reflected by the "All Events Flag" icon at the bottom right of the screen. Use this flag together with the Edit Filters to Erase Pitch Bend data or Program Changes from a Track, or Bounce all MIDI Channel 3 Events to another Track ("un-merge" or "un-bounce"), etc.

These two flags ("Full Range" and "All Events") can of course work together (along with the IN and OUT counters and the Edit Filters) to form some very sophisticated editing schemes. You might, for instance, want to Transpose all notes in the fourth and fifth bars of a Sequence which are on MIDI Channel 2. Or you might want to Bounce them to a different Track so they could be rechannelized and sent to a different synth. The possibilities are endless, and with SuperSequencer they're a breeze!

Note: The "All Events Flag" icon at the bottom right of the SuperSequencer screen will always indicate the state of the All Events Flag. If black, the Flag is ON - if white, the Flag is OFF. You can toggle the state of this Flag at any time by simply clicking on the icon.

EDIT SEQUENCE

This group of Editing routines works on the currently selected Sequence as a whole (dependent of course upon the Flags, Counters, and Filters already discussed).

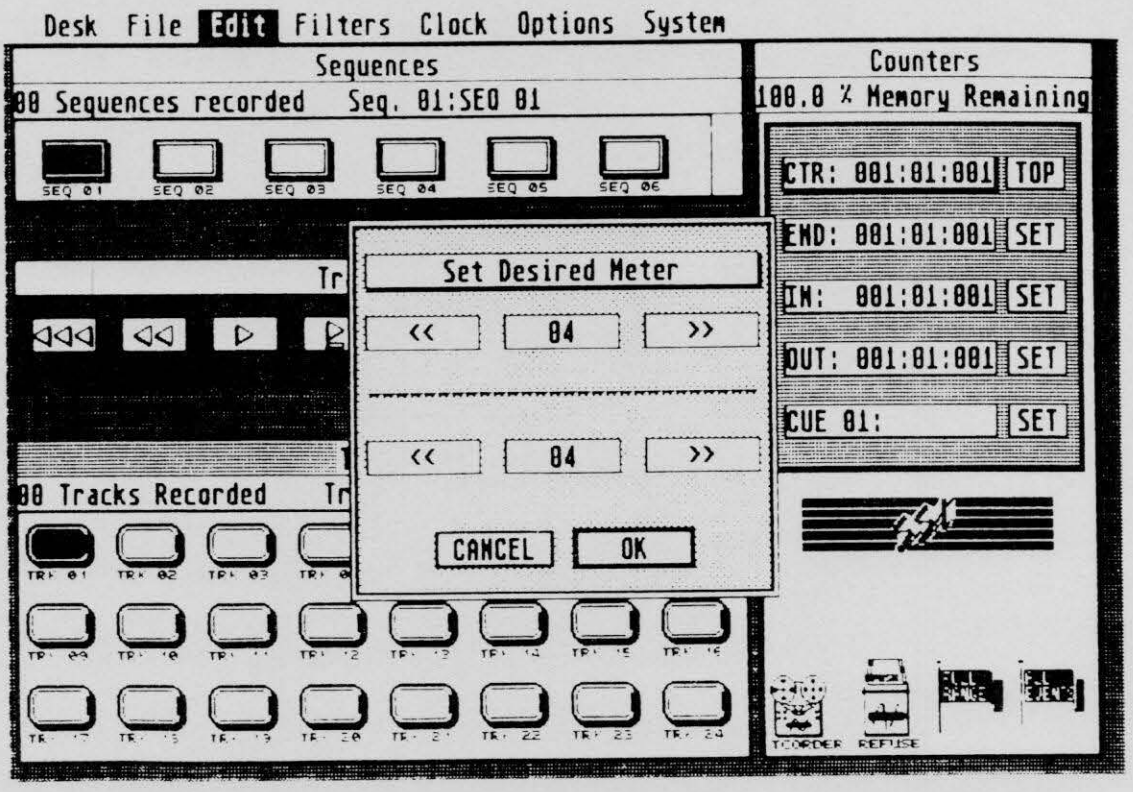

Fig. 3 - SuperSequencer ST: SET METER DIALOG BOX

Set Meter...

(This command affects the ENTIRE current Sequence, regardless of the state of the Full Range or All Events flags or the settings of the IN and OUT counters or Edit Filters.)

Click on "Set Meter" to set the Time Signature (Meter) of the current Sequence. Move the Mouse Pointer to the appropriate scroll button in the Dialog Box (see Fig. 4) and press the left Mouse button to raise or lower the value. SuperSequencer allows values from 2 to 32 for the top of the Meter and values of 2, 4, 8, 16, or 32 for the bottom. When you have selected the values you want, click on OK (or press RETURN). Setting the Meter does NOT affect the musical data within the Sequence; it affects only the counter displays and the audio metronome output by your ST.

Set Tempo...

(This command affects the ENTIRE Sequence, regardless of the state of the Full Range or All Events flags or the settings of the IN and OUT counters or Edit Filters.)

Click on "Set Tempo" to set the Playback/Record Tempo (speed) of the current Sequence. Each Sequence can have its own Tempo setting which can range from 40 to 250 beats per minute. Move the Mouse Pointer to the appropriate scroll button in the Dialog Box and press the left Mouse button to raise or lower the corresponding value.

Alternately, you can directly enter the desired Tempo by pressing ESC to move the input cursor to the left of the field and then typing numbers on the Atari keyboard. If you enter a number outside the permitted range of values (e.g., 999), SuperSequencer will "clip" it to fit within the acceptable range (e.g., 250). When you have set the Tempo as desired, click on OK or press RETURN.

NOTE: The Tempo that you set for the current Sequence will govern Playback/Record of that Sequence only when you are operating on Internal Clock. In External Clock operation, the Tempo will be determined by the external device providing the clock (such as a drum machine or another sequencer).

Set Beginning...

(This selection will be gray for an unrecorded Sequence, indicating it is inactive.)

Set Beginning is a unique command which allows you to move the beginning of the current Sequence to any point within the Sequence. This will ERASE all recorded material that was before the new beginning. Use Set Beginning to clip unwanted measures off the beginning of a Sequence. Use the Transport Controls to move the CTR counter to the point where you would like the Sequence to begin and click on "Set Beginning". You will be asked for a confirmation - if everything is as you want it, click on OK (or press RETURN); if not, click on CANCEL.

Set Beginning is an editing command which can alter a Sequence permanently. If you are unsure of what you're doing, it's a good idea to Bounce the current Sequence into the Tracorder (MAKE SURE the Tracorder is empty and then use the Mouse to drag its icon over to the Tracorder) and then to try the new Beginning on the Tracorder first, leaving the original Sequence intact.

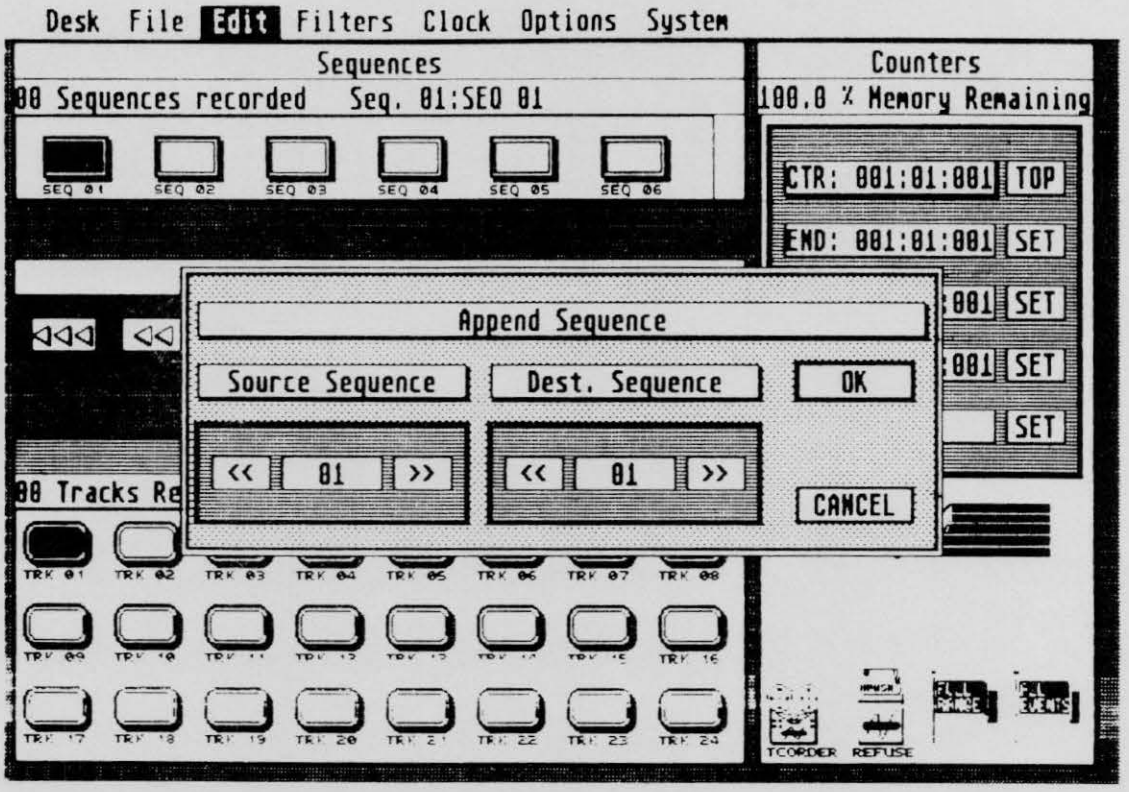

Fig. 4 - SuperSequencer ST: APPEND SEQUENCE DIALOG BOX

Append Sequence...

The Append Sequence command allows you to append a Sequence to itself, to any other recorded or unrecorded Sequence, or to the Tracorder (Sequence 25 for editing purposes). If you Append the Sequence to itself, you "double" the Sequence, making it repeat once and doubling its length. If you Append the Sequence to another Sequence, the Source Sequence will be tacked onto the End of the Destination Sequence (quite useful if you like working with "building blocks"). If you Append the Sequence to an empty Sequence, you will create a copy or "backup" of the Sequence just as you would if you dragged its icon with the Mouse. In all cases, the Append uses Sequence memory, and the Memory Remaining indicator will usually decrease as a result.

Click on "Append Sequence..." and then, with the Mouse Pointer on the appropriate scroll button, use the left Mouse button to select the Source and Destination Sequences; when you have done so, click on OK (or press RETURN) - that's all there is to it.

Append Sequence is an editing command which can alter a Sequence permanently. If you are unsure of what you're doing, it's a good idea to Bounce the Destination Sequence into the Tracorder (MAKE SURE the Tracorder is empty and then use the Mouse to drag its icon over to the Tracorder) in order to try your Append on the Tracorder first, leaving the original Sequence intact.

NOTE: As mentioned in Chapter 1, SuperSequencer features non-destructive End-setting. This means that when you set the End, it preserves all recorded material within the Sequence even though some of this material may be beyond the End that you set. When you do an Append Sequence, any beyond-the-End material which exists in the Destination Sequence will be "clipped" off. If you wish to preserve any of this beyond-the-End material, back up the Sequence in question and perform your Append using the back-up.

Click on "Shift Sequence" and then use the Mouse to select the Shift Increment (in Measures, Beats, or Pulses) and the Shift Amount (how many Measures, Beats, or Pulses plus or minus). SuperSequencer allows you to choose absolute amounts up to 999, so try to be aware of what your chosen Shift will accomplish: it's possible, of course, to effectively erase the entire Sequence with a negative Shift which is larger than the length of the Sequence. Also, you should be aware that, in Sequence Mode, SuperSequencer rolls its clock over to zero after it passes 999 measures (in Song Mode, the clock display rolls over to zero after 999 measures, but you can play as many as 4Ø96 measures of 4/4; in Sequence Mode, Playback itself "wraps around" to Ø after 999 measures). So if you have an eight measure Sequence and Shift it +999 Measures the playback clock will never quite get to the material in the Sequence to play it back. Each time the Dialog Box is up, you can do a Shift of one type of Increment (the last one you select); for instance, if you set it to Shift +3 Beats and then click on Pulses and set the amount to +96 and THEN click on OK, the Shift which will be performed is only the +96 Pulses - you cannot Shift +3 Beats AND +96 Pulses in the same operation.

This is an editing command which can alter a Sequence permanently. If you are unsure of what you're doing, it's a good idea to Bounce the current Sequence into the Tracorder (MAKE SURE the Tracorder is empty and then use the Mouse to drag its icon over to the Tracorder). Try out your edits on the Tracorder first, leaving the original Sequence intact.

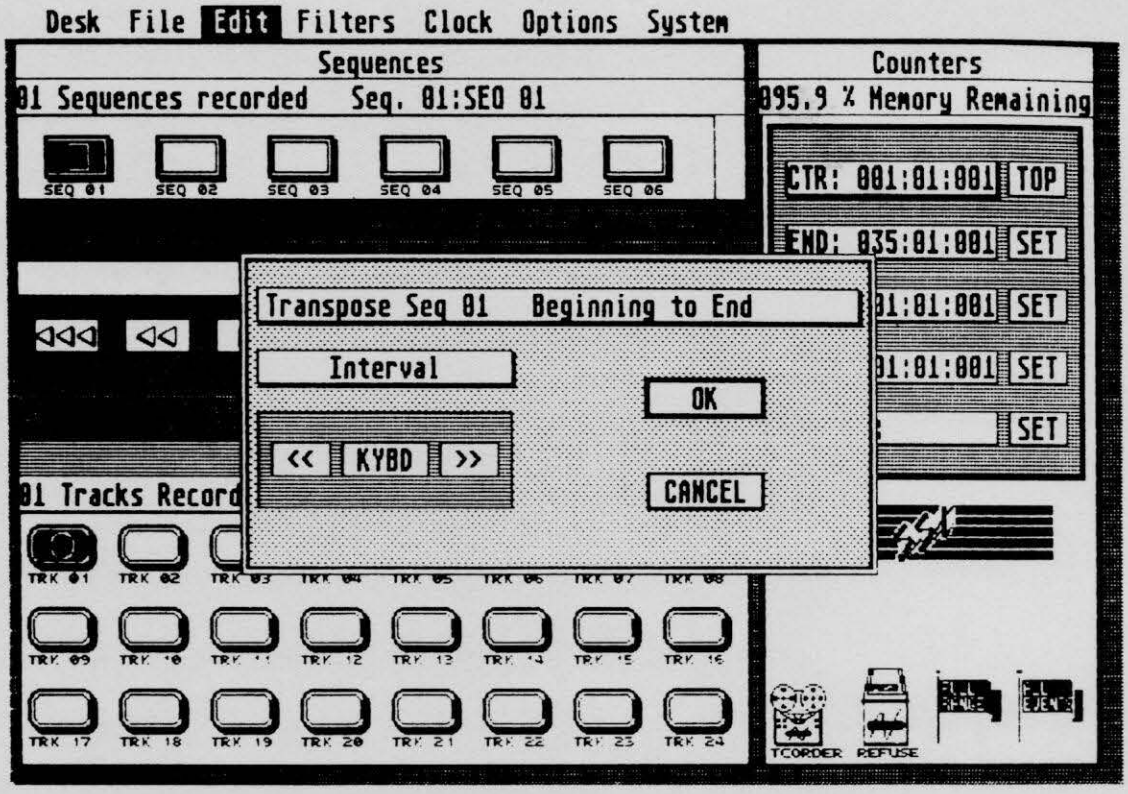

Fig. 6 - SuperSequencer ST: TRANSPOSE SEQUENCE DIALOG BOX

Transpose Seq...

(This selection will be gray for an unrecorded Sequence, indicating it is inactive.)

Transpose Sequence allows you to transpose the currently selected Sequence to any key you desire. Click on "Transpose Seq..." in the Edit Menu to see the Transpose Sequence Dialog Box. At the top of the Dialog is a line reading, "Transpose Seq. No. nn"; if the Full Range flag is ON, the rest of the line will read "Beginning to End". If the Full Range flag is OFF, the range to be Transposed (defined by the settings of the IN and OUT counters) will be shown to the right of the Sequence #. If Full Range is OFF, of course, only that portion of the Sequence within this displayed range will be Transposed.

The "KYBD" setting now showing in the Interval selector means that the number of half-steps (interval) can be input from your MIDI keyboard (after you click on OK or press RETURN); in this case, the Interval will be determined relative to Middle C on your MIDI keyboard (e.g., if you want to Transpose the Sequence up a fifth, press G above Middle C); an Alert Box will prompt you. Otherwise, you can click the left Mouse button on the appropriate scroll button in the Interval selector to set the number of half-steps up or down you wish to Transpose the Sequence; then click on OK (or press RETURN) and it's done.

NOTE: SuperSequencer allows you to Transpose as many as 127 half-steps up or down, which is the complete range of MIDI Notes (Ø-127). Of course, if you Transpose an entire Sequence by 127 semitones, all Notes will wind up beyond the range of allowable MIDI values (Ø to 127). Whenever a Transpose causes a note to fall outside the legal MIDI Note range, SuperSequencer will move the offending note one octave up or down until the note is within legal limits.

NOTE: SuperSequencer names the MIDI Notes in such a way that Middle C is called "C3"; the C one octave below it is called "C2" and one octave above it is "C4". C is considered to be the lowest member of the octave - Middle C is C3, the next note up is C#3, the next note is D3, and so on until you reach the next C, which is called C4. In this system of note names, the MIDI Note range of Ø to 127 is represented by the names "C-2" to "G8".

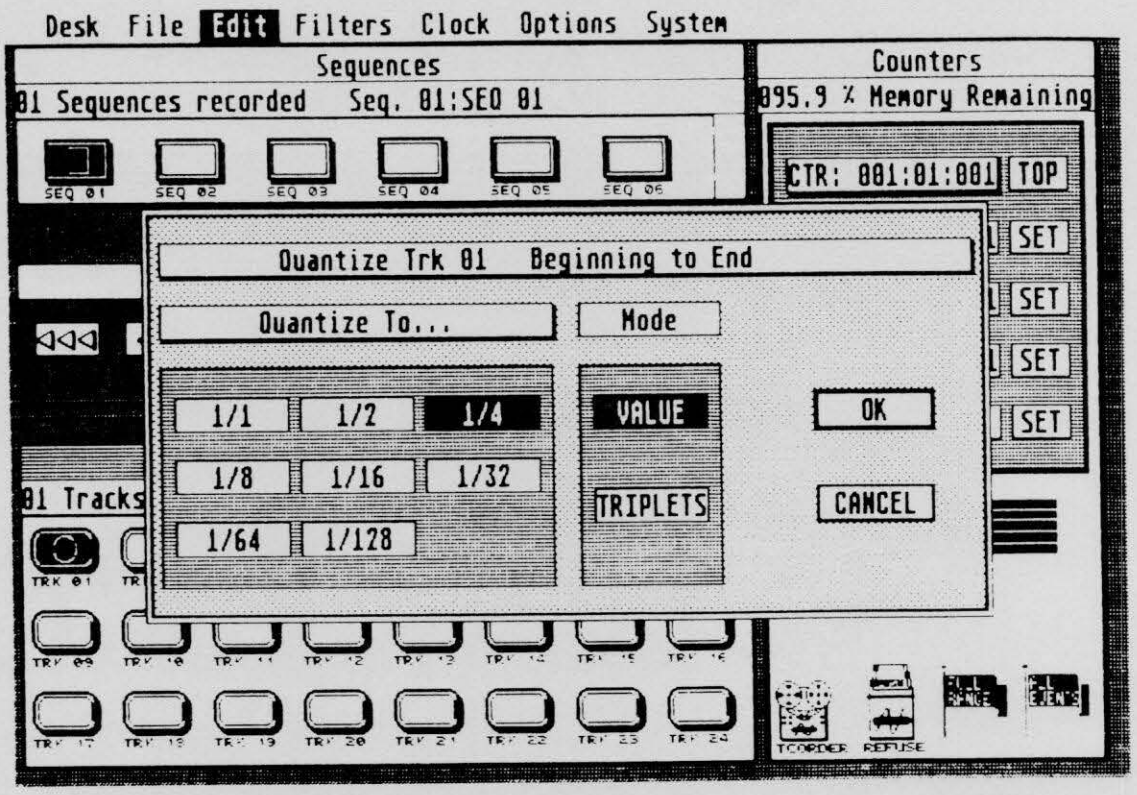

Fig. 7 - SuperSequencer ST: QUANTIZE DIALOG BOX

EDIT TRACK

This group of Editing routines works on one Track at a time (depending of course on the settings of the Flags, Counters, and Filters).

Quantize...

(This selection will be gray for an unrecorded Track, indicating it is inactive.)

Quantize is affected by the settings of the Full Range flag and the IN & OUT counters. Also, if the All Events flag is OFF, Quantize will be affected by the settings of the Notes filter and Channel Edit Filters. The Quantize function in SuperSequencer can be used to correct rhythmic irregularities in the currently selected Track; it allows you to round off the timing values of the Note events in the Track to the nearest correct rhythmic value.

To see the Quantize Dialog Box, click on "Quantize..." in the Edit Menu. At the top of the Dialog is a line reading, "Quantize Seq. No. nn"; if the Full Range flag is ON, the rest of the line will read "Beginning to End". If the Full Range flag is OFF, the range to be Quantized (defined by the settings of the IN and OUT counters) will be shown to the right of the Sequence number. If Full Range is OFF, of course, only that portion of the Sequence within this displayed range will be Quantized.

First, set the Quantize Value (in the "Quantize To..." box at the left of the Dialog). This is the smallest rhythmic value to which the timing values of the Note events will be rounded. SuperSequencer offers rhythmic values ranging from Whole Notes (1/1) to One-Hundred-and-Twenty-Eighth Notes (1/128). These are the available even subdivisions of a measure of 4/4 time. Select the VALUE you want (it should normally correspond to the smallest rhythmic value in the music to be Quantized) and click on it with the left Mouse button.

For triplet you must use the "TRIPLETS" selectors. For eighth-note triplets, for instance, first select "1/8" as a VALUE. Then click on the TRIPLETS button.

When you have arrived at the desired Quantization settings, click on OK (or Press RETURN) to execute the Quantize command; if you change your mind or if you are just looking at this Dialog out of curiosity and you don't want to Quantize, BE SURE to click on CANCEL to abort the operation.

This is an editing command which can alter a Track permanently. If you are unsure of what you're doing, it's a good idea to Bounce the current Track into an empty Track to make a backup (use the Mouse to drag its icon over to the new Track). Then Mute the current Track, select the backup Track, and try out your edits on the backup first, leaving the original Track intact.

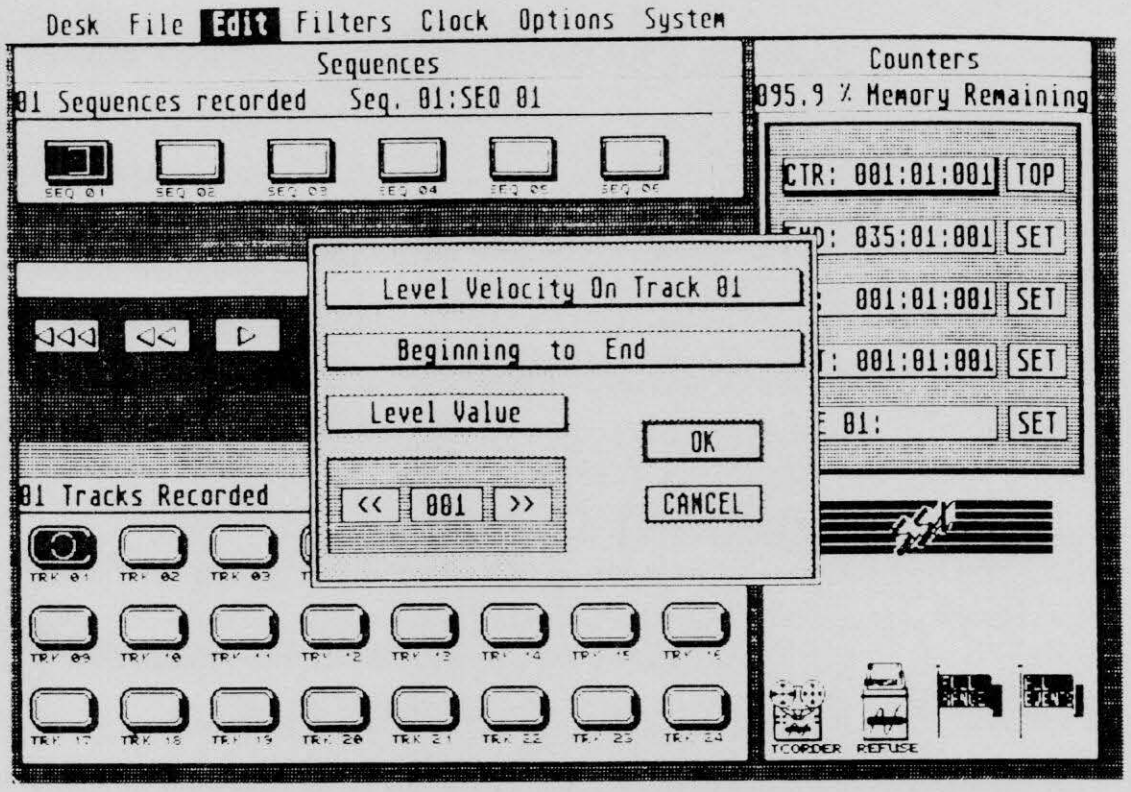

Fig. 8 - SuperSequencer ST: LEVEL VELOCITY DIALOG BOX

Level Velocity...

(This selection will be gray for an unrecorded Track, indicating it is inactive.)

The "Level Velocity..." command allows you to "Level" all note on and note off velocities in the selected Track to a specified value. SuperSequencer allows you to set note velocities to any value from 1 to 127.

What the Level Velocity command will do depends on the settings of the All Events Flag, the Full Range Flag and the settings of the other Edit Filters. This allows you to level notes recorded on a certain MIDI channel, e.g.

To see the Dialog, click on "Level Velocity..." in the Edit Menu. If the Full Range flag is ON (checked), the second box in the dialog will say "Beginning to End"; if the Full Range flag is OFF, the settings of the IN & OUT counters will be displayed in this box. Use the Mouse to set the desired Velocity value (from 1 to 127) and click on OK to execute the command.

Note: Level Velocity will have an audible effect only if the Track is played by a velocity-sensitive synthesizer; the Velocity values in the Track will be edited no matter what kind of synth you are using, but you can't hear it make any difference unless your synth will respond.

Unlike the Velocity Scaling in the Track Name, Channel, and Velocity Dialog, this Level Velocity command does not leave your accents intact; it Levels all Velocity values from start to end. Another difference is that this Level Velocity command does not simply scale Velocities during Playback and Record - it permanently changes the data within the Track.

This is an editing command which can alter a Track irreversibly. If you are unsure of what you're doing, it's a good idea to Bounce the current Track into an empty Track to make a backup (use the Mouse to drag its icon over to the new Track). Then Mute the current Track, select the backup Track, and try out your edits on the backup first, leaving the original Track intact.

Shift Track...

(This selection will be gray for an unrecorded Track, indicating it is inactive.)

Shift Track works just like the Shift Sequence command described above (see page 3.7), except that it Shifts only the current Track, not the entire Sequence, and it does not change the End of the Sequence.

Transpose Track...

(This selection will be gray for an unrecorded Track, indicating it is inactive.)

Transpose Track works just like the Transpose Sequence command described above (see page 3.9), except that it Transposes only the current Track, not the entire Sequence.

The Filters Menu

The Filters Menu is a powerful control menu in your SuperSequencer which allows you to earmark different types of data to be included or ignored in Recording and/or Editing operations. Having the ability to choose which types of data to Record or Edit enables you to accomplish some very sophisticated and precise musical tasks very easily. The Input Filters determine which types of data will be Recorded into the Track from your MIDI keyboard. When the All Events flag is OFF, the Edit Filters determine which data will be affected by Bouncing, Erasing, or Editing.

Input Filters...[f]

Click on the "Input Filters..." selection to choose which types of MIDI data SuperSequencer will Record and which it will ignore (you can also activate this selection by pressing "f" on your ST keyboard). Use the Mouse to select and de-select the different types of data; if a type is selected in this Dialog (turned black), it will be filtered (not Recorded) - if a type is unselected (white in the Dialog), it will be Recorded. The Default settings for the Input Filters filter out Aftertouch and System Exclusive data and Record all other MIDI data. Intended to assist you in preserving Sequence memory for important data (such as Notes), the Input Filters are independent of all SuperSequencer flags and affect the Recording and Play Through process only; once the Track has been Recorded, use the Edit Filters described later in this Chapter to manipulate the data within the Track. The following Input Filters may be set:

Pitch Bend - This continuous controller puts out enormous amounts of data; there may be times when you wish not to Record such data within the current Track (e.g., if it is to be Recorded on another Track or will be "played" live). If so, click on "Pitch Bend" with the left Mouse button.

Controller - This refers to MIDI Controller data (such as Mod Wheel or Breath Controller). These are also continuous controllers which, like Pitch Bend, can consist of huge amounts of data. If you wish them filtered (not Recorded), click on "Controller".

Aftertouch - This continuous controller (key pressure, as opposed to Velocity) is put out with every Note by many MIDI keyboards (such as the DX7). SuperSequencer comes from the factory set to filter out Aftertouch data; if you wish to Record Aftertouch, un-select it in the Dialog. We recommend leaving this filter ON (black in the Dialog) in all but the most unusual circumstances.

System Exclusive - This refers to a type of MIDI message used by synthesizers and drum machines to communicate data about their internal settings: patch, pattern, and song data. These messages typically allow you to send all the parameter settings for a sound or bank of sounds to a synthesizer. They vary greatly in size and, of course, in the time required to send them. It can be very convenient to store the actual patch data for a synthesizer in the Track where the sound is required; it can also use a LOT of memory and take as much as a second or two (a long time in music) to transmit. This filter defaults to ON. SuperSequencer allows you to Record System Exclusive information right in your Sequences (turn off its filter using the Mouse); you must decide if you have enough Sequence memory available and if there is enough time to send the System Exclusive message at the place in the Track where you wish to Record it.

Program Change - These are short MIDI messages which tell a synth to change to a new patch (or "Program") which is stored in its internal memory. Ordinarily, you will probably want to leave this filter OFF so that the Program Changes you select on your synth while Recording will make it into the Track. If, however, you are using a synthesizer which puts out "Implied Status" (such as the CZ-101), you may be using Program Changes to force the synth to put out a new Note status byte at the beginning of each Record. In that case, you might want to filter the Program Change events. To do so, click on "Pgm Change" in the Dialog.

Velocity Leveling - This filter doesn't actually filter out the Velocity values, instead (when ON), it turns them all to the same value (64). You may find this useful if you are using a velocity-sensitive synth (such as a DX7) and you have a part you wish to Record smoothly (without accents). To do so, click on "Velocity" in the Dialog, but remember - as long as this filter is ON (black in the Dialog), SuperSequencer will Record everything WITHOUT Velocity accents. Many newer synthesizers use Note Off Velocity (also called "Release Velocity") as a control source. Quite a few of these synths (such as the Kawai K5M and the Oberheim Matrix-6R) are synth modules which have no keyboard of their own. You may be using one of these modules with a MIDI keyboard which does NOT put out Note Off Velocity. If you select "Vel Leveling" in the Input Filters Dialog, Note Off Velocities will be leveled (to a value of 64) along with the Note On Velocities. This will allow you to Scale the Note Off Velocities (use the Track Name, Channel, & Velocity Dialog discussed in Chapter 1) on each Track. When Recording, SuperSequencer records incoming Note Off Velocities just like any other MIDI data except in Auto Step Mode. In Auto Step Mode, SuperSequencer sets all Note Off Velocities to zero unless Velocity Leveling is ON, when they are set to 64.In Realtime Recording, SuperSequencer records Note Off Velocities exactly as they come in unless the Velocity Leveling feature discussed above is ON (in which case ALL Velocities, both Note On and Note Off, are set to 64). Recording in Manual Step Mode records Note Off Velocities just the same way that Realtime Recording does.

When you have the Input Filters set as you want them, click on OK (or press RETURN).

EDIT FILTERS

The Edit Filters are used to choose which types of MIDI data will be affected by your Bounce, Edit, and Erase operations when the All Events flag is OFF (unchecked on the Edit Menu and its icon white in the lower right of the screen). These filters allow you to do some very high-level editing, but at times may cause some unexpected results, so it is very important that you understand how each of these filters works.

VERY IMPORTANT: Several Edit Operations are effected by the Edit Filters Settings. These operations include: Bounce, Erase, Append, Transpose, Quantize, and Velocity Leveling. None of the Edit Filters will have ANY effect when performing any of these Edit operations IF the All Events flag is ON.

Edit Filters Off

This selection allows you to "turn off" all the Edit Filters at once. Actually, all "Filter..." values are set to "NONE", but none of the ranges of values you may have set in the "Filter All Except..." boxes will be disturbed. Using this command, you can quickly disable one Edit Filter set-up in order to start a new one from scratch.

Notes

This command allows you to choose whether Note Events will be included in your Bounce, Edit, or Erase operations, giving you the power to move or not move Notes from one Track or Sequence to another.

Click on "Notes" in the Edit Filters Menu to toggle the Notes Filter on and off. This Filter is either On or Off and operates as follows:

When the Notes filter is OFF (no check next to it): NO Note Events will be filtered. ALL Notes in the Track or Sequence will be Bounced, Edited, or Erased.

When the Notes filter is ON (a check next to it): ALL Notes will be filtered (assuming the All Events flag is OFF), i.e. NO Notes will be Bounced, Edited, or Erased.

NOTE: The Notes filter should normally remain OFF (unchecked) unless you are actively intending to filter all of the Note Events from your current edit. There are quite a few of these Edit Filters, and if they are all set to unintended values it's very possible that you can arrive at a place where NO editing can take place at all (if the All Events flag is OFF). If you're not using a certain filter, BE SURE its "Filter..." is OFF (or set to "NONE" in the case of the Channel and Controller filters).

If you perform a Bounce with the Notes filter OFF (unchecked), ALL Notes in the Track will be included in the Bounce, i.e. Bounced (assuming all the other Edit Filters are also OFF (or set to NONE) - "NO" Notes will be filtered. If you perform the same Bounce with the Notes filter ON (checked) NONE OF the Notes in the Track will be Bounced - "ALL" will be filtered.

IMPORTANT: The Edit operations described here, Bounce, Erase, etc., as already mentioned are affected by the settings of all the Edit Filters as long as the All Events Flag is OFF (if the flag is ON, it means ignore the Edit Filter settings). All of these Edit operations are also effected by the setting of the Full Range Flag. If the Full Range Flag is OFF (unchecked or its icon white), then only the portion of the Track and Sequence in the interval between the IN counter setting and the OUT counter setting will be bounced or erased.

Aftertouch

This filter allows you to choose whether Aftertouch data will be included in your Bounce, Edit, and Erase operations. If the All Events flag is OFF and this filter is ON, then Aftertouch Events will be excluded from Bounce, Edit, or Erase operations. If this filter is OFF, they will be included. Click on "Aftertouch" to toggle the Aftertouch filter ON (checked) and OFF (unchecked). The Aftertouch filter works exactly like the Notes filter above (see the discussion of the Notes filter above).

EXAMPLE: If you would like to remove all Aftertouch data from a Track, first click on the Edit Filters Off to make sure all events are to be included in the edit operation. Next turn the Aftertouch filter ON so Aftertouch is now the single type of event which will be excluded from the edit operation. Now, with the All Events Flag OFF (so the Edit Filters are actually used) bounce the desired Track to an empty Track by dragging its icon. You have now moved everything except Aftertouch to the other Track. You can now turn the All Events Flag back on and erase the original track (with Aftertouch in it) by dragging its icon to the Trash can. If you didn't turn the All Events Flag ON (or turn the Aftertouch Edit filter OFF) when you performed the erase the Aftertouch events would be excluded from the edit operation - so they would not be erased (they would be all that was left in the Track).

IMPORTANT: The Edit Filters combine their effects when the All Events flag is OFF. This means if you have the Notes filter ON and the Aftertouch filter ON, for example, and all other filters OFF, when you perform a Bounce all Note events AND all Aftertouch Events will be filtered from the Bounce - i.e. they won't be Bounced.

Pitch Wheel...

This filter allows you to choose whether Pitch Wheel (or Bend) data will be included in your Bounce, Edit, and Erase operations. If the All Events flag is OFF and this filter is ON then Pitch Wheel Events will be excluded from Bounces, Copying or Erasing operations. If this filter is OFF they will be included. Click on "Pitch Wheel" to toggle the Pitch Wheel filter ON (checked) and OFF (unchecked). The Pitch Wheel filter works exactly like the Notes filter above (see the discussion of the Notes filter above).

Program Chg...

This filter allows you to choose whether Program Changes will be included in your Bounce, Edit, and Erase operations. If the All Events flag is OFF, and this filter is ON then Program Changes will be excluded from Bounce, Edit, or Erase operations. If this filter is OFF they will be included. Click on "Program Change" to toggle the filter ON (checked) and OFF (unchecked). The Program Change filter works exactly like the Notes filter above (see the discussion of the Notes filter above).

IMPORTANT: As mentioned before, when the All Events flag is OFF, the Edit Filters all work together, so when the All Events flag is OFF you must be sure that ALL the Edit Filters are set to do what you intend. OFF or NONE is a good setting for unused filters. Remember in the case of Erase, a filter set to "NONE" (OFF) will allow ALL events of its type to be Erased. Conversely, a filter set to "ALL" will allow NO events of its type to be Erased.

If, for example, you want to remove the Program Changes from a Track, you might think that it is enough to turn the Program Change filter OFF and then Erase the Track. However, if there are also Notes in the Track, and the Notes filter is OFF they will be erased as well. In this case where you are trying to remove all of one type of data from a Track by doing a filtered Erase, you must be sure that you filter "ALL" of every other type of data found within the Track to prevent Erasure of those other types of data. You may find it simpler, as described in the EXAMPLE above, to filter ALL of the unwanted events (Program Changes in this case), Bounce the Track (WITHOUT the unwanted events) to an empty Track, and then (with the All Events flag ON) Erase the original Track.

System Exclusive

This filter allows you to choose whether System Exclusive messages will be included in your Bounce, Edit, and Erase operations. If the All Events flag is Off and this filter is ON then System Exclusive messages will be excluded from Bounces, Copying or Erasing operations. If this filter is on they will be included. Click on "System Exclusive" to toggle the filter on (checked) and off (unchecked). The System Exclusive filter works exactly like the Notes filter above (see the discussion of the Notes filter above).

Channel...

This filter allows you to include Events on Bounce, Edit, or Erase MIDI Events assigned (by the recorded data) to a certain MIDI Channel.

Click on "Channel..." in the Edit Filters Menu. When the Channel filter dialog first comes up NONE is selected meaning Events on ALL MIDI channels will be included in Edit operations (NONE will be excluded). Now select "ALL EXCEPT ONE" and notice that the "Filter All Except" selector blackens indicating it is now active. Use the Mouse to set the MIDI Channel (from 1 to 16) you wish to include in Edit operations (Bounce, Edit, or Erase).

Use this filter in conjunction with the Bounce, Edit, and Erase operations (with the All Events flag OFF) to remove ("UN-Bounce") data on one Channel from a Track or Sequence which contains data on more than one Channel. Use this filter to Transpose data on one Channel only, etc. Remember, to extract data from a Track, first set the Channel filter to "ALL EXCEPT ONE" and then select the Channel you wish to extract. Make sure the All Events flag is OFF, and then Bounce the Track to an empty Track. This makes a COPY of the selected Channel's Events on the new Track. If you wish to REMOVE the non-filtered data from the old Track as well, you must then (secondly) with the same filter settings Erase the old Track (being SURE the All Events flag is still OFF). Erase the selected Channel Events from the original Track by dragging the original Track's icon to the Trash. This Erase will remove the selected Channel Events from the old Track.

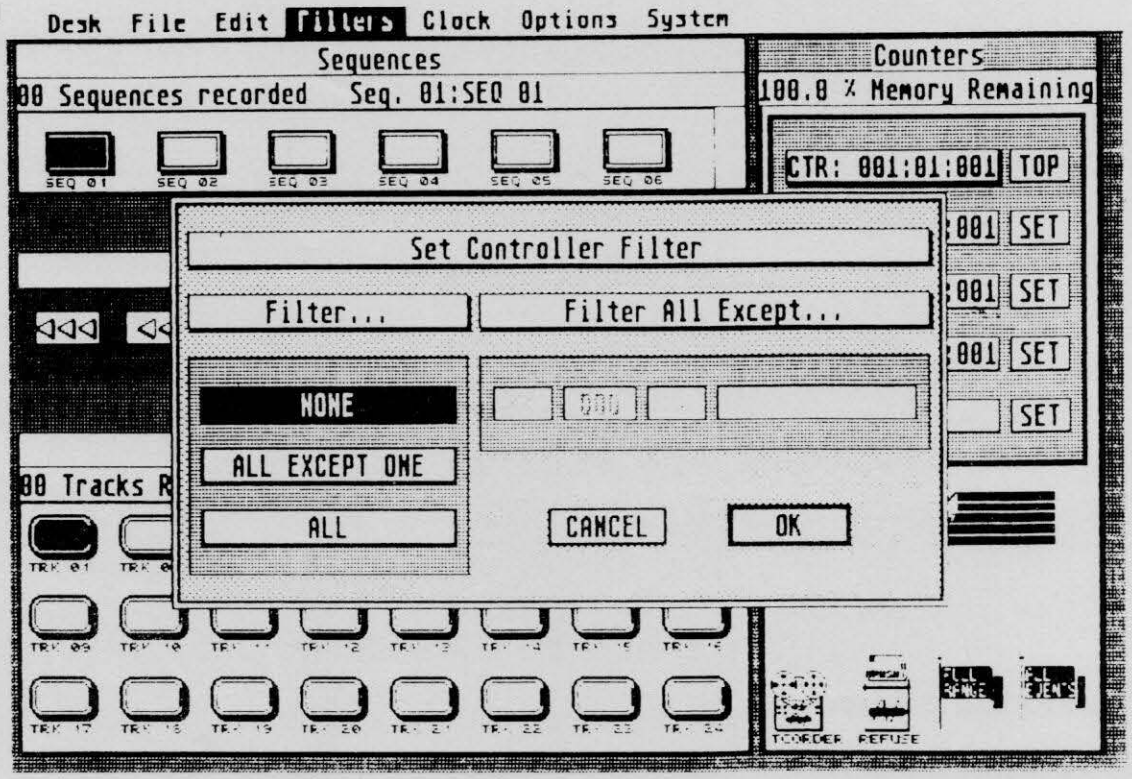

Fig. 9 - SuperSequencer ST: CONTROLLERS FILTER DIALOG BOX

Controllers...

This filter gives you three options; (1) include all Controllers in Edit operations (NONE), (2) include a single selected Controller in Edit operations (ALL EXCEPT ONE), or (3) exclude all Controllers from Edit operations (ALL).

There are potentially 128 different MIDI Controllers, numbered Ø to 127 (actually, numbers 122 to 127 are reserved for "Channel Mode Messages"), but as of this writing only a few of these numbers have been assigned to specific devices (see Appendix A for a complete list). Of these, by far the most common are the Mod Wheel (#1), Breath Control (#2), Foot Control (#4), and Sustain (#64).

The Clock Menu

SuperSequencer's Clock Menu is made up of selections which offer you precise control over Clock operations and many Playback, Record, and Syncing options.

Internal / External

This selection lets you choose whether SuperSequencer will be driven from the Atari ST internal clock or from an external source (which must be converted to MIDI timing bytes to be input to the ST). When Internal Clock is selected (checked on the Clock Menu), the Tempos which you have set for your various Sequences will be in effect; when External Clock is selected, these tempos have no effect - the playback Tempo is determined by the external device.

The External Clock setting allows you to use an external timing source, such as a drum box, an FSK to MIDI box, or another sequencer, to drive the Song or Sequence playback. To use this Clock setting, the MIDI Out on your timing source must be connected to the MIDI In on your computer, thus making Recording with SuperSequencer impossible in some cases. As a result, this Clock setting is normally used only to playback Songs or Sequences. Although the External Clock must drive SuperSequencer using MIDI Clock bytes which operate at 24 PPQN (pulses per quarter note), SuperSequencer maintains its own fine timing resolution of 192 PPQN even while being driven by an external source with the lower resolution.

Turning on External Clock also turns on MIDI Clock Out; this allows you to continue to start and stop Playback from the ST, assuming your external source is a drumbox which responds to MIDI Start & Stop commands.

CHAPTER FIVE

The Clock Menu

SuperSequencer's Clock Menu is made up of selections which offer you precise control over Clock operations and many Playback, Record, and Syncing options.

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Turning on External Clock also turns on MIDI Clock Out; this allows you to continue to start and stop Playback from the ST, assuming your external source is a drumbox which responds to MIDI Start & Stop commands.

To Record with SuperSequencer on External Clock, the MIDI In at the ST must receive the MIDI Clock bytes from the drumbox as well as the data from the MIDI keyboard that you want to Record. In order to achieve this, you need either a MIDI merger or a drumbox with a MIDI Merge/Thru function (such as the Yamaha RX21). In the latter case, the MIDI routing will require that the MIDI IN on the drumbox be connected to the MIDI Out on the master keyboard, which means that there is no way for the drumbox to receive the MIDI Start/Stop bytes from the ST! So you must initiate the Record on the ST (use the Mouse or press the SLASH ("/") key on your Atari keyboard) and then manually start your drumbox.

By far the easiest solution is to use SuperSequencer on its Internal Clock setting with the MIDI Clock Out ON to drive your drumbox as long as you are still Recording data into SuperSequencer. Once you have finished Recording, if you need to use the External Clock option to sync to tape or if you want to drive the Sequencer from your drumbox for a live performance, it's a simple matter. It's only Recording into SuperSequencer with External Clock which can be difficult.

Real Time / Step Mode [S]

This selection allows you to choose a Clock which operates in realtime (Internal or External Clock) or outside the constraints of realtime (Step Mode). Playback, Record, Punch-in/out, etc. can all be done in "Real Time" or in Step Mode. SuperSequencer features two different Clock advance methods in Step Mode - Auto and Manual.

When you first select Step Mode (click on "Step Mode" in the Clock Menu or hold down SHIFT and press "S" on the Atari keyboard), it starts out in Automatic Clock Advance mode. This means that when Recording, the Clock will advance by a given increment (e.g., Quarter-note or Sixteenth-note) each time you release all the (down) keys on your MIDI keyboard. If you press a "C" (on your MIDI keyboard) and release it immediately, the Clock will advance one increment; if you press a "C" and then press an "E" before releasing the "C", the clock will not advance until you release both keys on your MIDI keyboard. This allows you to enter chords, even huge chords, very easily in Auto Step Mode. Any time you wish the Clock to advance by an extra increment, with or without notes held down, press the BACKSLASH ("\") key on your Atari keyboard just to the right of the RETURN key.

In Manual Step Mode, you must press the BACKSLASH ("\") key ANY time you wish to advance the Clock, independent of Notes held or released on your MIDI keyboard; the Clock will not advance unless you advance it manually. This is somewhat less convenient but offers you much greater flexibility.

To Record in Step Mode, select an empty Sequence (use the Mouse or hold down SHIFT and press "<" or ">" on your Atari keyboard), enter Step Mode (click on "Step Mode" in the Clock Menu or hold down SHIFT and press "S" on your Atari keyboard), and start to Record the current Track (click on the Record icon in the Transport window or press "/" on your ST keyboard). The Record icon turns black, the message "RECORD ON! - Press Space Bar To STOP" appears in the top line of the "Tracks" window, and the message "A1/4 192" appears in the Command Line (just below the SuperSequencer logo at the right of the screen).

The "A" means Automatic Clock Advance; press "a" on your Atari keyboard to toggle between Auto ("A") and Manual ("M") Clock Advance (for now, leave it on Auto/"A" for simplicity's sake). The "1/4" means that the current Step Increment is a Quarter-note, and the "192" means that this Step Increment is 192 Pulses in length. If you want to select a Step Increment of an eighth-note, hold down SHIFT and press "E" on your Atari; for a sixteenth, press SHIFTed "S"; for a thirty-second-note, SHIFTed "T"; and to return to a quarter-note, SHIFTed "Q". You can select a Step Increment of any length (from 1 to 192 Pulses) using the (unSHIFTed) greater than ">" and less than "<" keys on your Atari keyboard. Triplet values will be identified in the Command Line (if you want to select sixteenth-note triplets as your Step Increment, first press SHIFTed "S" to select sixteenths, and then press "<" to decrement the Pulse values until you see "A1/16T Ø32"). Appendix C contains a list of Pulse equivalents for common rhythmic values.

When you have selected the Step Increment you want, play a short series of notes on your MIDI keyboard, MAKING SURE you release each note before you play the next one (remember, in the Auto Step mode, the Clock will not advance to give your note any length until all notes on your MIDI keyboard have been released). When you have finished, press the SPACE BAR to stop Recording. To hear the music you just recorded, click on the Play icon (or press the SPACE BAR) to start the Playback and then press the BACKSLASH ("\") key on your ST keyboard to advance the Clock. If you prefer to hear it in "real" time, press the SPACE BAR to exit Playback and then click on "Real Time" in the Clock Menu (or press SHIFTed "S" on your Atari keyboard) and then click on the Play icon (or press the SPACE BAR) to start Playback.

Clock With Start

This flag allows you to choose whether or not to send a MIDI Clock timing byte WITH the MIDI Start byte sent at the beginning of Playback when MIDI Clock Out is ON. Some drum machines interpret the MIDI Start byte as the first timing byte while others (e.g., the Yamaha RX11 & RX21) interpret it only as a Start command and require a separate timing byte for the first timing byte. If Clock With Start is ON (checked on the Clock Menu), SuperSequencer will send a MIDI Clock timing byte at the same time it sends the MIDI Start byte (assuming MIDI Clock Out is ON); if this flag is OFF, SuperSequencer will send the MIDI Start byte by itself. SuperSequencer is shipped set to Clock With Start ON (a timing byte is sent WITH the Start byte). When set to "External Clock" (and Clock With Start ON), SuperSequencer also expects to receive a MIDI timing byte on "1".

A simple procedure for determining which setting is correct for your drum machine is:

1) Select a Sequence with very simple (Quantized or Step-loaded) rhythmic content; also select a simple, quarter-note pattern on your drum machine.

2) On the Clock Menu, select Internal Clock and MIDI Clock Out ON; be sure the MIDI Out from your ST is connected to the MIDI In on your drum machine (also be sure your drum box is set to External MIDI Clock, or whatever setting it requires to be driven by MIDI Clock information from an external source).

3) On the Edit Menu, select Set Tempo and set the Tempo of the very simple Sequence to 4Ø BPM.

4) Play the Sequence and listen carefully to whether the drum machine is perfectly in sync with the Sequence. If it is not, toggle the Clock With Start flag on the Clock Menu and listen again.

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1) Select a Sequence with very simple (Quantized or Step-loaded) rhythmic content; also select a simple, quarter-note pattern on your drum machine.

2) On the Clock Menu, select Internal Clock and MIDI Clock Out ON; be sure the MIDI Out from your ST is connected to the MIDI In on your drum machine (also be sure your drum box is set to External MIDI Clock, or whatever setting it requires to be driven by MIDI Clock information from an external source).

3) On the Edit Menu, select Set Tempo and set the Tempo of the very simple Sequence to 4Ø BPM.

4) Play the Sequence and listen carefully to whether the drum machine is perfectly in sync with the Sequence. If it is not, toggle the Clock With Start flag on the Clock Menu and listen again.

Seam Data

Use this command to decide whether common controller "reset" information will be sent over all MIDI Channels whenever you cross the seam of a particular Sequence. This Seam Data is sent on the seam during playback and record in both Sequence and Song Mode. Setting the Seam data for a particular Sequence allows you to "reset" particular controllers that may have been left on (or non-zero) at the end of that Sequence fouling up the playback that follows. These "Reset" messages are sent over all sixteen MIDI channels and over both ports. This can take a healthy fraction of a second. If you notice unacceptable delays between Sequences in Song Mode or when looping in Sequence Mode you should probably turn the Seam Data for that particular Sequence off (unchecked). In these cases you can go into Step Mode and record the "reset" of the relevant controller (with the correct MIDI channel) into the end of an empty Track in the Sequence.

If Seam Data is turned ON for a particular Sequence, the following "Reset" messages will be sent whenever a Sequence loops or a Sequence Seam is crossed in Song Mode:

(1) Center Pitch Wheel (All Channels/Both Ports)

(2) Zero Mod Wheel (All Channels/Both Ports)

(3) Sustain Pedal Off (All Channels/Both Ports)

If you would like Seam Data sent on the Seam of a particular Sequence make sure the desired Sequence is selected and Click on the Seam Data Menu selection (a check should appear beside the "Seam Data" selection). Whether Seam Data is to be sent or not sent for a particular Sequence will be reflected by the Seam Data Menu selection. If checked, Seam Data is to be sent; if unchecked, it won't be sent. This Flag is saved with each Sequence in both a Sequence disk save and Song disk save.

IMPORTANT: When selected, this "reset" information will be sent over ALL 16 MIDI CHANNELS out of both Ports. If all of these controllers are selected to be "reset", a tremendous amount of MIDI data will be sent when crossing the seam of a particular Sequence. This may cause a MIDI overflow (or "MIDI Data Error") in some synths or sequencers. If you experience such an error, you will have to turn the Seam Data OFF (unchecked).

Metronome [n]

SuperSequencer puts out an Audio Metronome during Playback and Record operations. If you are using a TV set as a monitor, this Metronome's audio signal will be sent to your TV set - make sure its volume is set so you can hear the Metronome. If you are using an Atari monitor, be sure its volume is up. If you want to hear the Metronome through your own audio system, you must get an adaptor cable which provides a separate audio output from your ST. These cables are available at most Atari dealers.

To enable/disable the Metronome, click on "Metronome" in the Clock Menu (or press "n" on your Atari keyboard).

MIDI Clock Out [d]

This selection turns the MIDI Clock timing information Output ON and OFF. When ON, SuperSequencer will send MIDI Clock information along with normal Sequence information from the MIDI Out jack on your ST (and from the optional Sonus MIDI Out "Port B"). By putting out MIDI Clock data, SuperSequencer can be used to drive external devices such as drum boxes or other sequencers.

To enable/disable MIDI Clock Out, click on "MIDI Clock Out" in the Clock Menu (or press "d" on your Atari keyboard).

Some drum machines may have a hard time reading MIDI Clock information coming from the ST's MIDI Out when a large amount of MIDI Note (and other) data is also being transmitted. If you are trying to "drive" your drum machine using the MIDI Clock Out, the drum machine may show signs of rhythmic irregularity as it tries to digest massive amounts of MIDI data. One way to improve the performance of a drum box showing these symptoms is to use Sonus' optional "Port B" MIDI Out hardware to transmit MIDI Clock to the drum machine. Thinning out the MIDI data stream in this way allows you to keep the drum machine from being "swamped" and in sync.

Play Loop [l]

When this flag is ON (checked on the Clock Menu), SuperSequencer when Playing will immediately "loop" its Sequence or Song Playback back to the Beginning of the Sequence or Song upon reaching the End; when it is OFF, Playback will end when the Playback reaches the End of the Sequence or Song. Click on "Play Loop" in the Clock Menu (or press "l" on your ST keyboard) to toggle this flag ON and OFF.

In Sequence Mode, SuperSequencer always loops PlayBack (if the Play Loop flag is ON) ON the beat (the next whole beat equal to or after the End shown in the End counter). This is intended to aid you in finding a correct Seam Manager value (see Seam Manager discussion below in this Chapter). If your Sequence has so much activity going on at the End of the Sequence that the current Seam Manager value doesn't provide enough bookkeeping time to allow Playback to resume in time for the next down beat, SuperSequencer will delay Playback until the next beat in order to start cleanly on the down beat. In this case, you need to increase the Seam Manager setting by small amounts until Playback loops the way you want it to.

Since Sequence Playback always loops on the beat, you are effectively prevented from creating Sequences with lengths measured in partial beats (e.g., three and a half beats long). You can circumvent this restriction by changing Meter. If you want a Sequence to be three and a half quarter-notes long, set the Meter so that the bottom value of the Meter is 8. If the bottom of the Meter (the "beat") is 4, SuperSequencer will loop Sequence Playback on the quarter-note (thus preventing a 3 1/2 beat Sequence); if the bottom of the Meter (the "beat") is 8, SuperSequencer will loop Sequence Playback on the eighth-note (thus allowing a 3 1/2 quarter-note Sequence).

In Song Mode, each Element's Sequence will Playback exactly the length specified by the End of the Sequence (assuming the Seam Manager is set correctly). Looping on the next even beat (as defined by the Meter) occurs in Sequence Playback ONLY.

Clock Hold - When does the SuperSequencer Clock Advance?

When you record the First Track in a Sequence, SuperSequencer will start the Clock advancing when you play the first Note on your MIDI keyboard and will "lock" that Note onto the first beat of that Sequence no matter when within the beat (relative to the metronome) you played it. This is a common and convenient way to start the Clock on a first Track Record, but SuperSequencer provides one other option. If you would like to record your first Track with a rest at the start you can allow the clock to advance without waiting for a Note Event by pressing the "F7" button.

These options apply only to the Recording of the first Track of a Sequence. Once you have Recorded the first Track, Recording of subsequent Tracks starts as soon as you start the Record.

With SuperSequencer you can, however, designate a number of measures to use as a "Count-Off" when Recording (see below).

Count-Off...

This selection lets you choose a number of measures to use as a cue before Recording begins. Click on "Count-Off..." to see the Dialog Box and use the Mouse to select the number of measures you want (from 1 to 999). You must also turn the Count-Off ON by clicking on the ON button. Now when you start a Record, the CTR counter will turn black and count down the chosen number of measures in the current Meter. While the CTR counter is black no Recording can take place; it is a cue for you - a time to get ready to Record and hear the Tempo from the Metronome, etc. When the CTR counter returns to its normal color, Recording begins; if you are doing a first Track Record, the Count-Off will override any Clock Hold setting you may have chosen.

Seam Manager...

Some sequencers force Sequence Playback to end a few Pulses early (as much as a thiry-second-note) so that certain bookkeeping tasks may be performed and necessary Note Off data can be sent at the very End of a Sequence (no notes are left on at the End of a Sequence). This early ending can be a necessity if there is a lot of activity at the End of the Sequence. For example, if you have 20 Notes playing (left on) at the End of a Sequence, it will take approximately 20 milliseconds to send out all of the Note Offs via MIDI. This means that if you Play to the very End of the Sequence, the next downbeat (or "1") will come in 20 milliseconds late. Because this is clearly unacceptable, some sequencers force the Sequence to end early in order to have plenty of time to do all the necessary bookkeeping. You may, however, have a Sequence where very little is going on at the End and so the small bookkeeping silence is unnecessary. SuperSequencer's Seam Manager allows you to make this determination for yourself.

Determining what Seam Manager value is best suited for Playback of the current Sequence is quite simple. Be sure the Play Loop flag is on (checked in the Clock Menu). Then Play the Sequence back and listen to where the "seam" is (the point where it loops). If the top of the Sequence comes in late after it loops, you need a larger Seam Manager value; if it sounds fine, leave it as it is (or try a smaller Seam Manager value if you like). Each Sequence has its own Seam Manager setting which allows you to set different values for the different amounts of activity and different tempi (Playback speeds) found in different Sequences. SuperSequencer defaults to a value of 40 Pulses (less than a 1/16th note) which is sufficient for most situations. You may have to increase the value slightly in Song Mode, especially if you have Recorded a Lead Track, Auto Mutes, or Repeats (see Chapter 8). These all affect the amount of bookkeeping time required by SuperSequencer for "clean" seams. To set the Seam Manager value for the current Sequence, click on "Seam Manager..." and use the Mouse to select the value (from 0 to 192 Pulses) you want.

IMPORTANT: No material can be Recorded or Played back in the Seam Manager's time at the end of the Track. If you Record with a Seam Manager setting of 40 Pulses and Record all the way to the End of the Track and then set the Seam Manager to 70 Pulses, there will be 30 Pulses of material that Playback will not reach. If there is some important data within that 30 Pulses (e.g., a Sustain Pedal Off message or a Zero Mod Wheel message), you will have to Record it at an earlier time on another Track or set your Seam Manager back to 40 Pulses. SuperSequencer automatically sends a Note Off for every Note left on at the End of the Sequence, so you don't have to worry about Notes Off.

If this whole discussion bores you or freaks you out, leave the Seam Manager values always set to the default value. In 99% of the cases, this will provide fine performance.

CHAPTER SIX

The Options Menu

The Options Menu contains selections which allow you to perform various tasks with your SuperSequencer.

Song Mode... [Esc]

Click on "Song Mode..." to enter SuperSequencer's powerful Song Environment (see Chapter 8 for a complete discussion of Song Mode). Alternatively, you may press the Escape key to enter Song Mode.

Mute Track [m]

Click on "Mute Track" to mute (or un-mute) the currently selected Track. You can also mute any Track by pressing "m" on your Atari keyboard, followed by the number of the Track you wish to mute, followed by RETURN; this type of muting ("m" on the computer keyboard) is always available - even during Playback/Record of both Sequences and Songs. The icons of muted Tracks appear in gray in the Tracks window and the data in a muted Track will not be output (played) during Playback/Record operations.

Solo Track [s]

Click on "Solo Track" to solo the currently selected Track. You can also solo any Track by pressing "s" on your Atari keyboard, followed by the number of the Track you wish to solo, followed by RETURN; this command is also available during Playback/Record. "Soloing a Track" means muting all Tracks except the Soloed Track. Only the Soloed Track will sound (all the other Track icons will turn gray).

Unmute All Tracks

Click on "Unmute All Tracks" to un-mute any Tracks which are currently muted. You can also unmute all Tracks by pressing "m" on your Atari keyboard, followed by the number "Ø", followed by RETURN; this command is also available during Playback/Record of both Sequences and Songs. When all Tracks are unmuted, all Tracks will sound during Playback/Record.

Omni Off/Poly On... [o]

Click on "Omni Off/Poly On" (or press "o" on your ST keyboard) to send out an Omni Mode Off/Poly Mode On (MIDI Mode 3) command over all MIDI Channels. Some synths when first turned on come up in Omni Mode, i.e. they will receive and respond to all MIDI Channels. This means that during Sequence and Song Playback they will play information from all Tracks regardless of any MIDI Channel assignments. This is important only if you are using a multi-synth set-up.

If this is the case and you wish to put all of your synths into Mode 3 (Omni Off/Poly On), click on this selection in the Options Menu to send the command over all channels (and both MIDI Out Ports, if available). It will affect all units which are connected to MIDI Out and which are turned on at the time you send the command. Once the command is sent, your synths should play information coming over only the specific MIDI Channel on which they are set to receive. If you don't want certain synths to be in Mode 3 (Omni Off/Poly On), be sure they are turned off or disconnected when you click on this selection.

Quiet!/All Chns... [a]

Click on "Quiet!/All Chns" (or press "a" on your Atari keyboard) to send a Note Off event for every key over all Channels and both MIDI Out Ports. This takes about twelve seconds, during which the Mouse Pointer will turn to a "bee" and the Command Line will display the Port over which the events are currently being sent. Use this command to turn off any annoying notes which may have been left on by accident (such as by disconnecting a MIDI cable while a note is still playing).

Send Exit Data... [z]

Click on "Send Exit Data..." (or press "z" on your Atari keyboard) to manually send the Exit Data chosen in the System Menu (see Chapter 7) over all Channels and both MIDI Out ports. This can be useful if your synths' wheel settings, sustain, or volume have somehow been changed to funny values. This command is automatically executed when you exit Playback/Record of a Sequence or Song. This is done to ensure that the various controllers are reset to normal settings rather than some arbitrary value recorded in one of the Tracks.

View MIDI... [v]

This selection allows you to visually monitor the MIDI data stream coming into SuperSequencer from the MIDI In port of your ST. IMPORTANT: ONLY the data which is NOT filtered out by the Input Filters will be displayed. The data is displayed as individual hex (hexadecimal = base 16) bytes which move across the screen from right to left as they are received (see Appendix D for a table of Hexadecimal/Decimal equivalents). Use this selection to verify that a certain synth is successfully transmitting to SuperSequencer, or to examine the various MIDI values output by a MIDI instrument.

An interesting use of the MIDI Viewer is to determine what MIDI Program Change number corresponds to a specific synth patch. Be sure the Program Change Input Filter is OFF, and the MIDI Out of the synth in question is connected to the MIDI In of your ST. Click on "View MIDI..." or press "v" on your ST keyboard and when you see the Data Stream Viewer, select the patch on the front panel of the synth. You should see something like "Cn xx", where the Cn is a "status byte" specifying a Program Change (the "C" part) on MIDI Channel n. In this case, n ranges from Ø to F (from decimal Ø to decimal 15) for MIDI Channels 1 to 16. The "xx" (the second byte of the message) is the MIDI Program Change number (in hex) which corresponds to the patch you selected on your synth (if you have a hex calculator desk accessory, it could come in handy here). In case this is completely mysterious to you, Appendix B is a table of MIDI Program Change numbers (Ø to 127) with their equivalents in some of the more common synth patch numbering schemes.

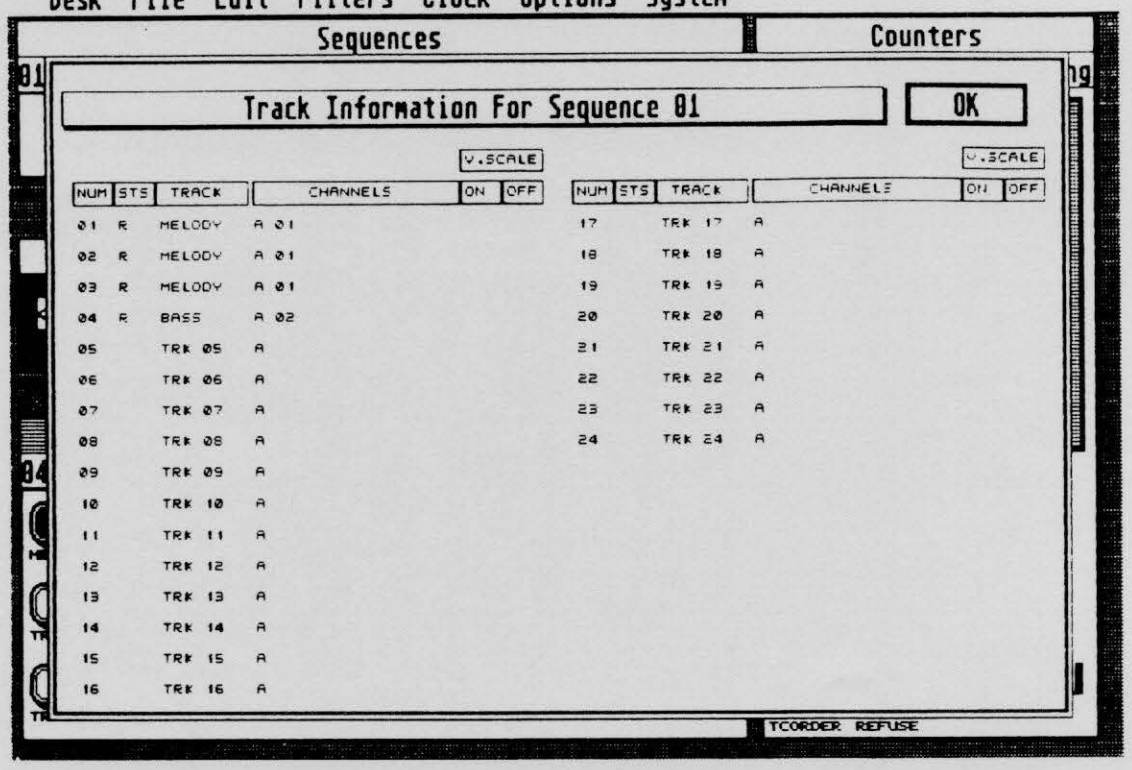

Fig. 1Ø - SuperSequencer ST: TRACK INFO BOX

Track Info... [t]

The Track Info Box lets you see certain important settings for all 24 Tracks at once. This is particularly helpful when working with multi-synth systems. No changes can be made from the Track Info Box; it is intended to give you the "big picture". Click on "Track Info..." (or press "t" on your ST keyboard) to see:

"NUM" (Number) - This column contains the Track numbers from 1 to 24.

"STS" (Status) - This column shows "R" for a Recorded Track, is blank for an unrecorded Track, and shows "M" if the Track is muted.

"TRACK" - This column shows the Name of each Track.

"CHANNELS" - This column shows the current Channelization settings for each Track. Remember, each Track can be sent over as many as four MIDI Channels and out either or both Port A and Port B.

"V.SCALE ON" (Velocity Scaling of Note Ons) - This column shows the current settings (from -99 to +99) of the Note On Velocity Scaling for each Track.

"V.SCALE OFF" (Velocity Scaling of Note Offs) - This column shows the current settings (from -99 to +99) of the Note Off Velocity Scaling (also known as "Release Velocity") for each Track.

If you are unfamiliar with the details of these settings, refer to "Assigning a Track's Name, MIDI Channel(s), and Velocity" in Chapter One. When you have had a good look at the Track Info Box, click on OK (or press RETURN) to return to the SuperSequencer desktop.

Auto Punch [^p]

(This selection will be gray for an unrecorded Sequence, indicating it is inactive.)

Click on "Auto Punch" to turn the Auto Punch flag ON or OFF. When ON, this flag enables a specialized type of Recording ("Automated Punch-In/Out") which allows you to determine with great precision where to punch in and punch out. SuperSequencer will then perform the punch for you automatically so you will have both hands free to play your MIDI keyboard.

Auto Punch is performed on a single Track - the currently selected Track indicated by the black Track icon. When you actually perform the Auto Punch, the previous Track information located between the punch in point and the punch out point is erased, so you should be careful using Auto Punch. If you are concerned about saving any of the material you intend to punch out, you should back up the Track by Bouncing it to an empty Track. In an Auto Punch, Recording starts (punches IN) at the point shown in the IN counter and stops (punches OUT) at the point shown in the OUT counter. Therefore, you must set these counters before starting your Auto Punch.

Use the Transport controls to move the CTR counter to the point where you want to punch in and click on the SET button to the right of the IN counter. Then move the CTR counter to the point where you want to punch out and click on the SET button to the right of the OUT counter. IMPORTANT: the value in the OUT counter must be LARGER than the value in the IN counter, otherwise no Auto Punch will be possible.

You are now ready to perform an Auto Punch. Be sure the Auto Punch flag is ON (checked on the System Menu) and then click on "TOP" in the Counters window (or press BACKSPACE on your ST keyboard) to move the CTR counter to the Beginning of the Sequence (or recall a convenient Cue Point which you have set previously - see "More About Cue Points" in Chapter 1). Start the Sequence playing, NOT RECORDING (YET)! Notice that when you get to the Punch In point the IN counter turns gray, indicating Playback is within the range defined by the IN and OUT counters. When you reach the Punch Out point, the IN counter is restored to its normal color. Use this Playback feature to rehearse your punch or to confirm that you have set the counters correctly (since these same counters govern most editing operations when the Full Range flag is OFF, you may find this feature very useful).

When you're ready to Record the punch, click on the Record icon (or press "/" on your ST) just as you would to start a normal Record operation. If the current Track is already Recorded, you will be required to confirm that you do in fact wish to punch in on this Track. Notice that the top line of the Tracks window shows the message "RECORD ON! - Autopunch Active". When you reach the Punch In point, the IN counter will turn black, indicating that Recording is taking place; when you reach the Punch Out point, it will be restored to its normal color. When you are satisfied with the punch, it's a good idea to turn OFF the Auto Punch flag so that further Record operations will be implemented in a normal fashion.

Live Punch [P]

SuperSequencer features a second type of punch operation called Live Punch. Live Punch is similar to Auto Punch, except that it is done "on the fly" and no counters need to be set in advance. Live Punch can be used only during Playback. To perform a Live Punch, first be sure the currently selected Track is the one you wish to punch. You can punch in on an empty Track if you want only to Record additional material and don't need to remove an undesired portion of a Track. Start Playback (click on the Play icon or press the SPACE BAR) and when you reach the point where you want to punch, hold down the SHIFT key on your ST keyboard and press "P". You will see the IN counter turn black, again indicating Recording. When you reach the place where you want to punch out, hold down the SHIFT key and press "P" again. The IN and OUT counters will show the points where you punched IN and OUT. If you don't punch OUT, SuperSequencer will punch OUT for you automatically at the End of the Sequence.

Only one Live Punch can be performed on each Playback of a Sequence. If you need to punch more than one place, you will have to repeat the process.

Live Punch is so simple and convenient that you will probably find yourself using it often; it's a good way to correct a wrong note or other isolated problems within a Track. IMPORTANT: LIVE PUNCH CAN BE USED EVEN IN STEP MODE PLAYBACK. When used in Step Mode, Live Punch is a powerful editing tool which gives you great control over the contents of a Track. Because it is so easy, it is also easy to make a mistake. Always BE SURE the currently selected Track (indicated by the black Track icon) is the correct Track; otherwise you may punch a hole in a perfectly good Track. Also, if you don't intend the punch to go all the way to the End of the Sequence, BE SURE to punch OUT; otherwise you may erase material in the Track beyond the place you intended to punch out.

If you do a Punch (either Auto Punch or Live Punch) and "play" nothing (no Notes or other MIDI events such as Pitch Bend or Mod Wheel) during the Punch, NO recording will take place and nothing will be erased. If you want to "cut a hole" in a Track, set the In and Out counters, turn OFF the Full Range flag, and drag the Track to the Refuse icon at the lower right of your screen (it never hurts to back up the Track first). This will Erase only the range defined by the In and Out counters, thus "cutting a hole" in your Track.

Play Through [x]

Click on "Play Through" (or press "x" on your Atari keyboard) to turn the Play Through flag ON or OFF. When Play Through is ON (checked in the System Menu), you can send the material you are playing, during both Playback and Record, out over a SuperSequencer MIDI Channelization set-up (as many as four MIDI Channels at once, out either or both Port A and Port B) of your choice. If you are preparing Sequences on a multi-synth system, Play Through is particularly important. You may be Recording material on your "Master" keyboard which you intend to send to one or more of the other synths in your system (perhaps a rack-mounted modular multi-synth). It is often desirable to hear the music you are Recording not on the "Master" keyboard on which you are playing it but instead on the "Destination" synth(s) for which it is intended. Play Through allows you to do just this.

To use Play Through, first be sure its flag is ON (checked in the System Menu). Next you must assign the Play Through Channelization, the MIDI Channel(s) and MIDI Out Ports over which the music played on your "Master" keyboard will be sent. Generally, this should be the Channel of the "Destination" synth. This Play Through Channelization is selected by specifying a Track Channelization before Record or Playback (double click on the icon of the current Track to get the Track Name, Channelization, and Velocity Dialog - see Chapter 1). The Play Through Channelization is the same as the Channelization for the current Track. If you don't specify any Channelization, SuperSequencer will output the incoming MIDI information over whatever Channel it comes in on (which isn't necessarily the "Destination" synth's Channel).

Now turn down the volume on your "Master" keyboard and Record a little music or Play back an existing Sequence and play along with it. You should hear the "Destination" synth(s) playing as you play your Master keyboard. If you don't, either the Play Through flag isn't ON, or you've set an incorrect Play Through Channelization. Be sure you've selected the proper MIDI Out Port and that the Destination synth(s)' MIDI In is connected to that Port.

If you are using a multi-synth system in this manner you probably want to put your synths in MIDI Mode 3 (Omni Off/Poly On) - see Chapter 6. REMEMBER: With SuperSequencer you can use Play Through in BOTH Record and Playback.

Local Control [X]

Hold down the SHIFT on your Atari keyboard and click on "Play Through" in the System Menu (or press "X" on your Atari keyboard) to send a Local Control Off message over all Channels and both Ports. This will disable the (local) keyboard control from any synths which are listening and which respond to a Local Control Off message (it also turns Play Through ON ; you can exit immediately if you wanted only to send the Local Control Off message). The primary purpose of turning Local Control OFF is to allow the KEYBOARD of the synth you are using as a "Master Keyboard" to send MIDI to ANOTHER synth during Play Through while the SYNTHESIZER portion of your "Master Keyboard" synth plays a recorded sequencer part and ignores what you are playing on its keyboard. To make use of the Local Control Off message, your "Master Keyboard" synth MUST be capable of operating with Local Control turned OFF - consult your owners' manual. If you wish to turn Local Control back ON, hold down Shift on your ST keyboard as you turn Play Through OFF (by clicking on Play Through in the System Menu or pressing "X" on the computer keyboard).

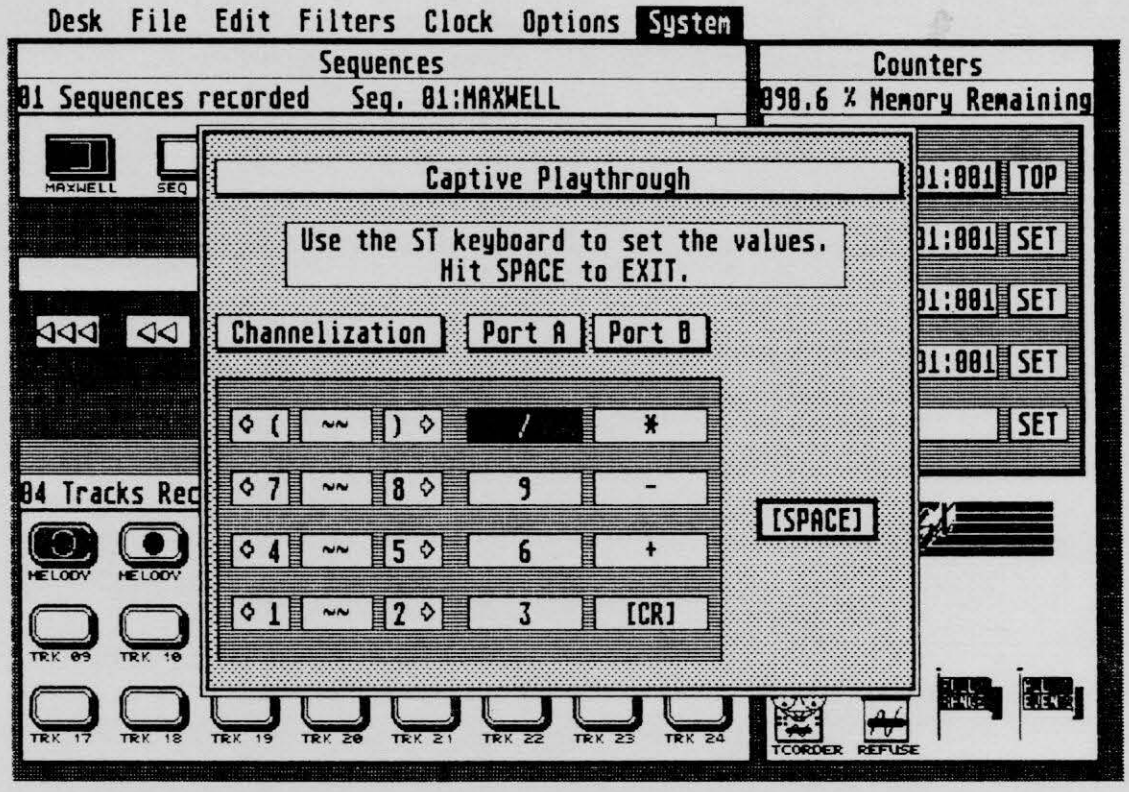

Fig. 11 - SuperSequencer ST: CAPTIVE PLAY THRU DIALOG BOX

Captive... [*]

You may have noticed that the Play Through feature described above works only while the Transport is running - during Playback or Record operations. Captive (an abbreviation for "Captive Play Thru) is an alternate type of play thru offered by SuperSequencer which can be used at any time EXCEPT during Playback and Record.

To enter Captive Play Thru, click on "Captive..." (or press the ASTERISK "*" key on your ST keyboard) and you will see the Captive Dialog Box. You can now use the MIDI keyboard you have connected to the MIDI In on your ST to play any other synth(s) you have connected to the MIDI Out Port(s) on your ST. Any MIDI information coming in to SuperSequencer at the MIDI In jack on the ST will be sent back out over the Channelization you select. This Dialog Box is unique within SuperSequencer in that the Mouse is temporarily disabled while the Dialog is on the screen, so you must use the Atari keyboard to set up the Captive Play Thru Channelization. Also, you MUST press the SPACE BAR on your ST keyboard to exit from this Dialog - there is no Mouse to click on an Exit button.

This Channelization works just like the one in the Track Name, Channelization, and Velocity Dialog described in Chapter 1 with two exceptions: First, certain keys on the Atari keyboard are required to be pressed to operate the buttons because the Mouse is temporarily disabled. Second, this Channelization has no effect on the Playback Channelization of the current Track - it is a temporary manual setting to allow to to play "around" your MIDI sytem right now. You can select as many as four different MIDI Channels to be sent out either or both MIDI Out Ports A and B (remember, "Port B" refers to an optional piece of Sonus MIDI Interface hardware). The double tilde ("~~") means a selection is "passive" - the MIDI data coming in to SuperSequencer will be sent out over the same MIDI Channel it comes in on. If a selection is passive ("~~"), it forces the remaining selections below it to be passive as well.

The difference in this Dialog is the keyboard commands necessary to operate the buttons. The key which operates each button in the Dialog is shown on the button itself (e.g., the top left scroll button is operated by pressing the LEFT PAREND "(" key on the ST keyboard). These keys were chosen to utilize the numeric keypad at the right of your ST keyboard - notice the correspondance between the position of the buttons within the Dialog box and the position of the associated keys on the numeric keypad.

If, for example, you wish to set-up a Captive Play Thru Channelization to send MIDI data to MIDI Channels 3 and 7 out of Port A and MIDI Channel 12 out of Port B, follow these steps:

Press the RIGHT PAREND ")" key three times to select Channel 3 in the top Channelization.

Port A should already be selected (black), but if it isn't, press the SLASH "/" key to select Port A in the top row.

Press the number "8" key seven times to select Channel 7 in the second Channelization.

Press the number "9" key to select Port A in the second row.

Press the number "5" key twelve times to select Channel 12 in the third Channelization.

Press the PLUS "+" key to select Port B in the third row.

You can, of course, use the QWERTY keyboard on your ST to make these settings, but the keys were selected to make using the numeric keypad quick and easy. When selecting Channel numbers you can hold the key down to make the numbers scroll, just as you would with the Mouse button.

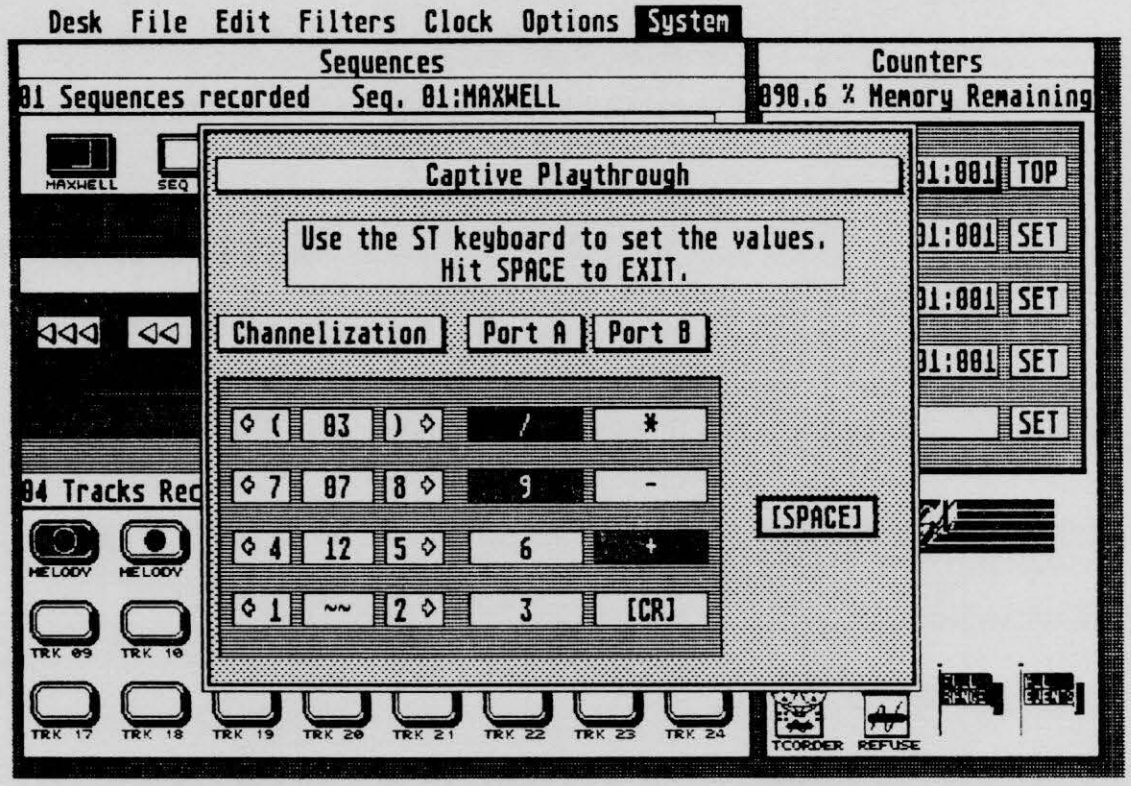

Fig. 12 - SuperSequencer ST: CAPTIVE PLAY THRU DIALOG

Captive Play Thru is an extremely useful function which turns any MIDI keyboard into a powerful MIDI system controller. Use it to verify that all your synths are turned on and are succesfully putting out audio. Use it to send Program Changes to your various synths and to audition the resulting patches. Or use it to rehearse a part targeted for a specific combination of synths to see how it will sound before Recording. Captive Play Thru gives you access to your entire MIDI system from one keyboard (the one connected to your ST's MIDI In. There is, however, one limitation: Captive Play Thru will Channelize all incoming MIDI information EXCEPT for System Exclusive data which it FILTERS OUT. System Exclusive information is therefore NOT transmitted in Captive Play Thru.

No other SuperSequencer commands can be executed while you are in Captive Play Thru (thus the name, "Captive"). To do anything else you MUST exit Captive Play Thru by pressing the SPACE BAR on your Atari keyboard.

MOD To VOL

This stands for Mod Wheel to MIDI Volume and refers to a unique SuperSequencer feature which allows you to translate any Mod wheel values coming into SuperSequencer into MIDI Volume (Controller #7). This conversion is subject to the action of the Input Filters, so be sure that controllers are not first being removed by the Input Filters. IMPORTANT: This "conversion" is in effect during Recording, Playback (with Play Through ON), and Captive Play Thru.

Use this MOD To VOL feature to use your Master Keyboard's Mod wheel as a MIDI Volume control for your other synths (assuming they respond to MIDI Volume control). With this conversion on you can volume mix your various Tracks using your Master Keyboard's Mod Wheel.

REMEMBER: You must turn the MOD To VOL conversion OFF in order to return to recording and playing through Mod Wheel. If MOD To VOL is ON (checked) all incoming Mod wheel will always be converted.

Drum Channels...

This selection allows you to select a MIDI Channel (or Channels) whose MIDI data will not be transposed by any SuperSequencer Transpose operation - Track, Sequence, or Song. It is called "Drum Channel" because it is intended to allow you to protect drum machine information you have Recorded into a Sequence from being Transposed inadvertently when you Transpose the Note data. When you have selected a Drum Channel or Channels, NO Note Data which is recorded on or "Hard" (as in Hardened) channelized to a Drum Channel will be Transposed - whether it is ordinary Note data or drum Note data. This applies to Track and Sequence Transposes as well as Song and Song Element Transposes. (BE SURE, of course, to select your "Drum Channel(s)" and Channel assign and Harden the proper Tracks BEFORE you do any Transposes.) There are undoubtedly many other practical and creative uses of this feature which have nothing to do with drum machines, but its original intent was to protect drum machine data, hence its name.

If a Track isn't Channelized, but SOME of the Note data in the Track is on a Drum Channel (i.e., if the Track is the result of several Tracks which were Channelized to different Channels, Hardened, and then Bounced together) ONLY that Note data within the Track which is not on the Drum Channel will be Transposed.

To select a Drum Channel, click on "Drum Channel..." in the System Menu and then click on the number(s) which correspond to the Channel(s) you would like to protect. When done, click on OK (or press RETURN). Your Drum Channel(s) selection is saved with any Song Disk save along with the Song data.

a warning dialog will be displayed. If you decide to go ahead the Track WILL be transposed. If you want to protect such a Track from transposition you must Harden the Sequence or individual Track (see Chapter 1 on Harden).

Set Exit Data

Use this command to select which common controller "reset" information you would like to have sent over all MIDI channels and over both ports whenever you exit from Playback or Record in Sequence or Song Mode. This is the "Reset" data that will be automatically sent each time the Space Bar is pressed when exiting Playback or Record. Automatically sending "Reset" information can be a great convenience to restore any pitch or mod wheels which may have been set off center or nonzero in the course of Sequence or Song Playback.

Click on "Set Exit Data" to bring up the Exit Data dialog box. The "Reset" data you can send includes: Center Pitch Wheel, Zero Mod Wheel, Sustain Pedal Off, and Max MIDI Volume. SuperSequencer defaults to sending the first three of these messages. Click (and Blacken) the messages you would like sent whenever exiting from Sequence or Song Playback or Record. When done Click on OK.

IMPORTANT: If all of these "Reset" messages are selected a tremendous amount of MIDI data will be sent whenever you exit Playback or Record. This may cause a MIDI overflow (or "MIDI Data Error") in some synths or sequencers. If this happens you will have to deselect some controllers until the exit error is eliminated. SuperSequencer defaults to sending the following exit data.

Install Lead Track

This selection allows you to "Install" (i.e. move) Track 24 of the Tracorder into the Lead Track of a Song (THIS COMMAND IS USED ONLY IN CONJUNCTION WITH SONG MODE - see Lead Track discussion in Chapter 8).

Retrieve Lead Track

This selection allows you to "Retrieve" (i.e. move) the Lead Track from the Song and place it in Track 24 of the Tracorder for the purpose of editing the Lead Track (THIS COMMAND IS USED ONLY IN CONJUNCTION WITH SONG MODE - see Lead Track discussion in Chapter 8).

PART TWO - SONG MODE

CHAPTER EIGHT

Song Mode Operations

Click on "Song Mode..." in the Options Menu (or press the "Esc" key) to enter SuperSequencer's powerful Song Mode. The Sequence Mode windows will close, to be replaced by the Song Mode windows. The new screen should look very familiar to you, as it is quite similar to the Sequence screen that you have been working with.

Song Mode enables you to chain together the Sequences you have made in Sequence Mode. Up to twenty-four (24) "Elements" can be chained together. For each of the 24 Elements you can specify an individual Transpose, a number of Repeats, and - if you use SuperSequencer's unique Auto Mute feature - a preset muting configuration. Songs allow you to string together elaborate chains of Sequences but require no additional Sequence memory. In addition to the individual Transpose available for each Element, the entire Song can be Transposed (a Transpose which is added to each of the Elements' own individual Transposes) without affecting the Note data Recorded in the Sequences. Also, a "Lead Track" which runs the length of the entire Song can be recorded over the top of the Song. This is useful for Melody parts or Drum parts.

The first difference between the Song screen and the Sequence screen is that what in Sequence Mode was the Tracks window is now the "Song Elements" window. This window contains the list of 24 Elements which will make up your Song. In the top line of this window is the place where the Song Name, once given, and the Song Transpose (if any) will be displayed. Notice that the Element icons (labeled "ELEM Ø1" thru "ELEM 24") don't have the rounded corners the Track icons had; this is a reminder to you that you are in the Song screen and these icons have totally different functions from the Track icons.

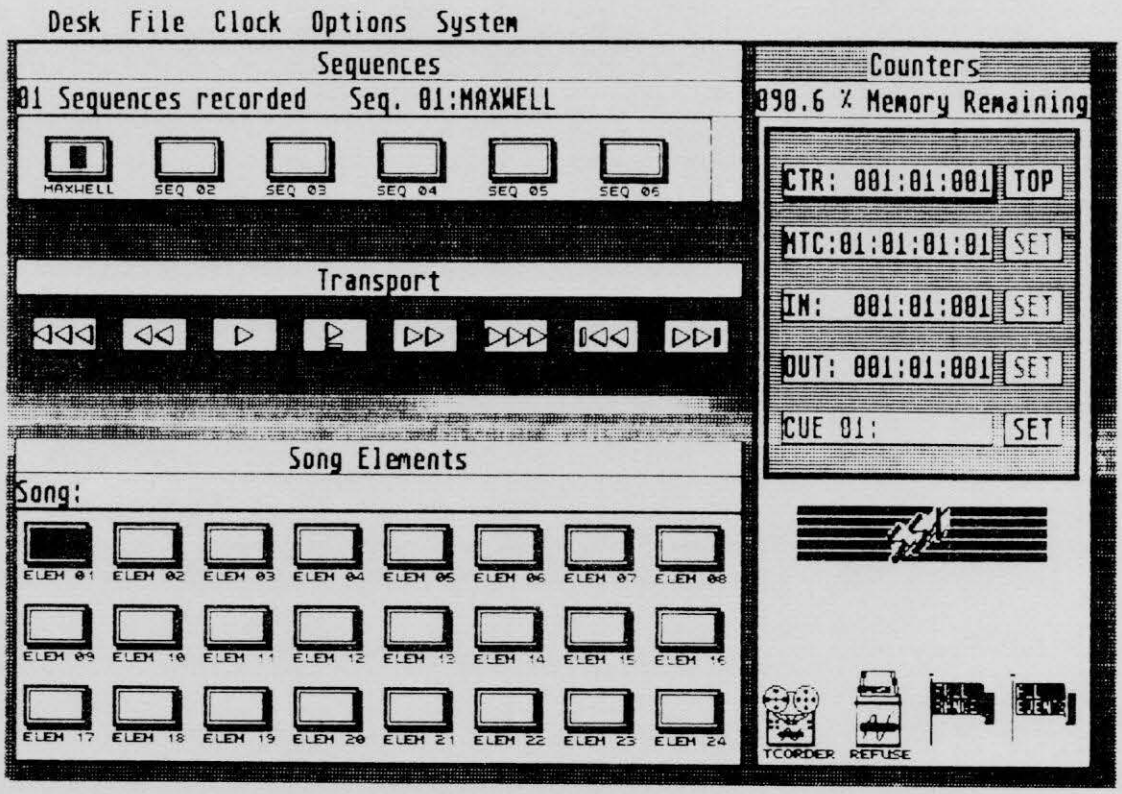

Fig. 13 - SuperSequencer ST: SONG SCREEN

Building a Song with SuperSequencer is a model of simplicity. To insert a Sequence into your Song, all you need to do is to drag the Sequence from the "Sequences" window at the top of the screen to one of the Elements in the "Song Elements" window at the bottom of the screen. If you drag a sequence to an already occupied song element, a dialogue will be displayed asking whether you wish to insert the element or replace it. To remove a Sequence from a Song Element, simply drag the SONG ELEMENT ICON from the "Song Elements" window (NOT the Sequence icon from the "Sequences window) to the REFUSE icon at the bottom right of the screen. This will remove the Sequence from that Element only, it will NOT Erase the Sequence from memory. When the Song is Played back, the Song Elements are played in order from left to right, top row first, then second row, then third. Any empty Elements will be ignored. You can see that it is extremely easy to arrange your Sequences in any order you choose to make a Song.

To Playback a Song, once constructed with valid Sequences, simply click on the Play icon in the Transport window (or press the SPACE BAR on your Atari keyboard). The Song will play starting from the currently selected Element (the one whose icon is black). The Transport window will display several indicators which give you information about the status of the Playback of your Song:

The number at the left is the number of the Element which is currently being played.

To the right of the colon is the name of the Sequence specified in the current Element.

If any Repeats have been specified for the current Element, the number of times left to play before proceeding to the next Element is displayed after "Loop:". This number will decrement as Playback continues.

If any Transpose has been specified for this Element, it is displayed (in half steps up or down) to the right of the "Transpose:" label.

If the Tempo of the Song Playback has been adjusted (in the Clock Menu), the percentage faster or slower will be shown to the right of the "Tempo:" label. (See the discussion of "Tempo Adjust..." below.)

If you wish to play the Song from the Top, you should be sure the currently selected Element is the first one in the Song before you initiate Playback. All the muting commands from Sequence Mode are still active in Song Playback.

The second difference between the Song Screen and the Sequence Screen is the "Counters" window. The CTR counter still counts Measures, Beats, and Pulses to let you know where you are within the music, but now it counts Measures cumulatively throughout the Song. If you have an eight-bar Sequence specified in the first Song Element, when you reach the second Song Element (either in Song Playback or simply by selecting the second element with the Mouse) the CTR counter should read "ØØ9:Ø1:Ø1", indicating that the second Element begins at the ninth bar of the Song.

Notice that the top three "SET" buttons and the "IN" and "OUT" counters are gray in Song Mode, indicating they are inactive - they provide no function in Song Mode.

The Sequence and Transport windows operate exactly as they do in Sequence Mode.

Note: In Song Mode the ">" and "<" keys may be used to move the selected Song Element to the next and previous Element location.

Parameters Dialog Box. This Dialog allows you to set a Transpose, a number of Repeats, and a Muting configuration (which will be used when the Auto Mute flag is ON) for each Song Element.

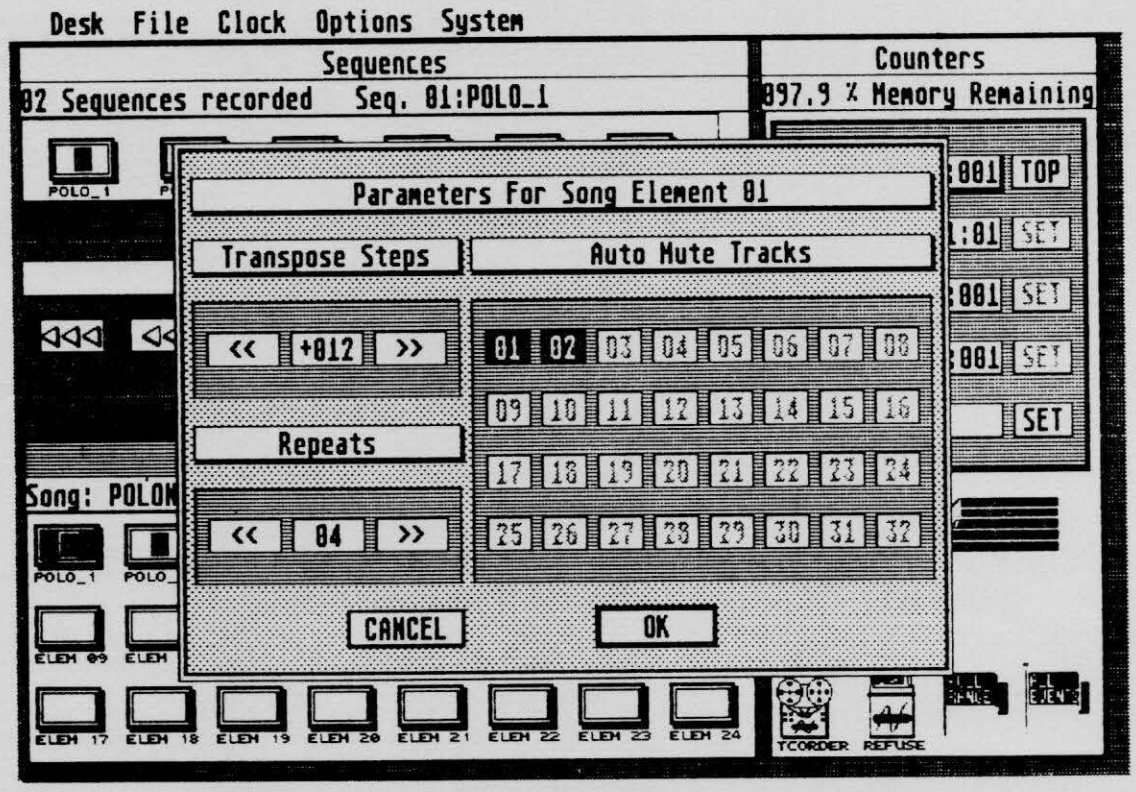

Fig. 14 - SuperSequencer ST: SONG ELEMENT PARAMETERS DIALOG

Use the left Mouse button to scroll the values in the "Transpose Steps" selector. This selects the number of half-steps up or down that you would like to Transpose any Sequence specified in the current Element. All Notes in the Sequence, except notes on MIDI channels designated as drum channels are Transposed during Song Playback. However, this Transpose does NOT affect the Note data recorded in the Sequence itself - it is strictly a Playback operation. If you want the Sequence specified in the current Element to be played in the same key as it was Recorded, use the triple tilde "~~~" (passive) setting for this selector.

Note: The Lead Track discussed below is ALWAYS unaffected by Song Element Transpositions.

Use the Mouse to choose a number of Repeats with the "Repeats" selector. You can specify the number of times you would like the Sequence to repeat for each of the 24 Song Elements. The number of Repeats can range from "~~" to 99. If you select 1 Repeat, the Sequence in the current Element will be repeated once - it will be played twice; if you select 3 Repeats, it will be played four times. If you would like the Sequence to play only once, select "~~" for NO repeats. If you are using Auto Mute, each of the Repeats will have the SAME Auto Mute setting, although you can change the muting of each of the Repeats manually during Playback.

Auto Mute

SuperSequencer features a unique Auto Mute function which allows you to set up, in advance, the muting for each Element in the Song. When enabled, Auto Muting re-sets the Track muting at the start of each Song Element during Playback. This is very useful if you want certain Tracks of the Sequence to "lay out". By using one Sequence with different Auto Mute settings in different Elements you can produce many radically different-sounding Sequences. Track muting can be altered manually at any time during Song Playback.

Use the Mouse in the "Auto Mute Tracks" selector box to select which Tracks you want to have muted and which you would like to have played for the current Element. Tracks are indicated by number. Unrecorded Tracks are shown in gray and cannot be selected. Recorded Tracks which have been muted are shown in black on a white background. Recorded Tracks which will be played are shown in white on a black background. Click on a Track's number to mute or un-mute the corresponding Track during Playback of the current Song Element. For Auto Mute to work, the Auto Mute flag must be ON (checked in the Clock Menu). If this flag is OFF, all Sequences in the Song will be played with whatever mutes they happened to have last.

If you have difficulty remembering which Track in a Sequence is which, click on "Track Info..." in the Options Menu (or press "t" on your ST keyboard) to see the display of 24-Track Information for the Sequence specified in the currently selected Element (then click on OK or press RETURN to return to the Song Screen).

DESK MENU

The entire Desk Menu is identical to the one in Sequence Mode (see Chapter Two).

FILE MENU

Clear Song...

This command allows you to Erase the current Song; it clears all of the Song Elements, Repeats, Transposes, and Auto Mutes. Clear Song does NOT Erase or affect any of the recorded Sequences.

Set Drive...

This selection is identical to the one in Sequence Mode with the same menu label (see Chapter Two).

Load Song...

Songs which have been saved to diskette using the Save Song command can be loaded into memory using the Load Song command. This command allows you to Load an entire Song which includes the Song itself and all Sequences which were in memory when the Song was saved. Loading a Song from disk OVERWRITES ALL SEQUENCE AND SONG DATA in memory at the time of the Load, so if there is anything presently in memory which you wish to preserve, save it to disk (Save Song saves the Song AND all Sequences in one operation) before you execute the Load.

Click the left Mouse button on "Load Sequence...". A standard GEM file selector box will appear showing the Directory of the diskette in the currently selected drive. For Song disk loads and disk saves, SuperSequencer defaults to a file path of "A:*.SNG" if drive A was used to boot the program. This means that the Directory will display only those files on the disk in drive A (the boot drive) which have the extension "SNG". To see ALL files on the disk in drive A, click on the extension in the filepath and use the BACKSPACE key to edit the extension (the path should read "A:*.*") and then click on the Move Bar (the gray bar at the top of the Directory window in the Dialog Box).

Next double-click on the name of the Song file you wish to load. You will be warned that all Song and Sequence data will be Erased by the Load and asked for a confirmation. If you wish to proceed, click on OK. That's all there is to it.

Save Song...

Clicking on "Save Song..." allows you to save the current Song AND all Sequence data currently in memory in one operation. A standard GEM file selector box will appear showing the Directory of the diskette in the currently selected drive. For Song disk loads and disk saves, SuperSequencer defaults to a file path of "A:*.SNG" (if drive A was used to boot the program). This means that the Directory will display only those files on the disk in drive A (the boot drive) which have the extension "SNG". To see ALL files on the disk in drive A, click on the extension in the filepath and use the BACKSPACE key to edit the extension (the path should read "A:*.*") and then click on the Move Bar (the gray bar at the top of the Directory window in the Dialog Box).

If the Song you wish to save already exists as a filename on the diskette in the drive, double-click on its name in the directory; otherwise, enter the new filename in the space provided (SuperSequencer will automatically add the extension "SNG") and press RETURN or click on OK. If the file already exists on the disk, you will be asked to confirm that you wish to replace it.

Delete Song...

Using the "Delete Song..." command, you can delete (scratch) unwanted Song files from your diskettes. To execute a Delete, click on "Delete Song..." in the File Menu. When the Dialog Box appears, enter the name of the Song you would like to delete and press RETURN or click on OK. If a file with the same name exists on the diskette currently in the selected drive, you will be asked to confirm the Delete. IMPORTANT: Once a file is deleted, it CANNOT be recovered by SuperSequencer.

Format Disk...

This selection is identical to the one in Sequence Mode with the same menu label (see Chapter Two).

Quit

Exits you back to the Atari desktop; you will be asked for a confirmation.

Internal

This selection is identical to the one in Sequence Mode with the same menu label (see Chapter Five).

External

This selection is identical to the one in Sequence Mode with the same menu label (see Chapter Five).

Auto Mute [A]

Click on "Auto Mute" to turn the Auto Mute flag ON or OFF. When ON, this flag causes the Sequences within the Song to be played with their current Auto Muting settings in effect. When this flag is OFF, all Sequences in the Song will be played with the last muting they had (see the Auto Mute discussion above on page 8.5).

Auto Zero [^z]

This selection is similar to the one in Sequence Mode with the same menu label (see Chapter Five). The difference is that, in Song Mode, Auto Zero (when ON) returns the CTR counter to the top of the entire Song, not just to the top of the current Sequence.

Clock w/Start

This selection is identical to the one in Sequence Mode with the same menu label (see Chapter Five).

Seam Data...

This selection is identical to the one in Sequence Mode with the same menu label (see Chapter Five).

Metronome [n]

This selection is identical to the one in Sequence Mode with the same menu label (see Chapter Five).

MIDI Clock Out [d]

This selection is identical to the one in Sequence Mode with the same menu label (see Chapter Five).

Play Loop [l]

This selection is similar to the one in Sequence Mode with the same menu label (see Chapter Five). In Song Mode with Play Loop ON, Playback loops back to the Top of the Song.

Song Pointer Out

When ON (checked on the Clock Menu), this flag causes SuperSequencer to put out MIDI Song Position Pointer data upon entering and exiting Song Playback. This allows external devices which are hooked to the MIDI Out of your ST and which accept Song Pointer to stay synced to SuperSequencer as you move around the Song. Using Song Pointer, you can start Song Playback from any Element in the Song, and your (Song Pointer-reading) drum machine will stay in sync. No longer do you have to start at the beginning of the Song each time. Song Pointer Out is used to "slave" other (Song Pointer-reading) hardware and software devices to SuperSequencer's Song Playback.

This Song Pointer Flag has NO effect on SuperSequencer receiving and responding to Song Pointer messages received from the Atari MIDI In Port. SuperSequencer ONLY RESPONDS TO RECEIVED SONG POINTER MESSAGES IN SONG MODE - NOT IN SEQUENCE MODE. In Song Mode SuperSequencer ALWAYS responds to Song Pointer messages whether in or out of Playback or Record. Upon receipt of a Song Pointer message SuperSequencer goes to the appropriate Counter position.

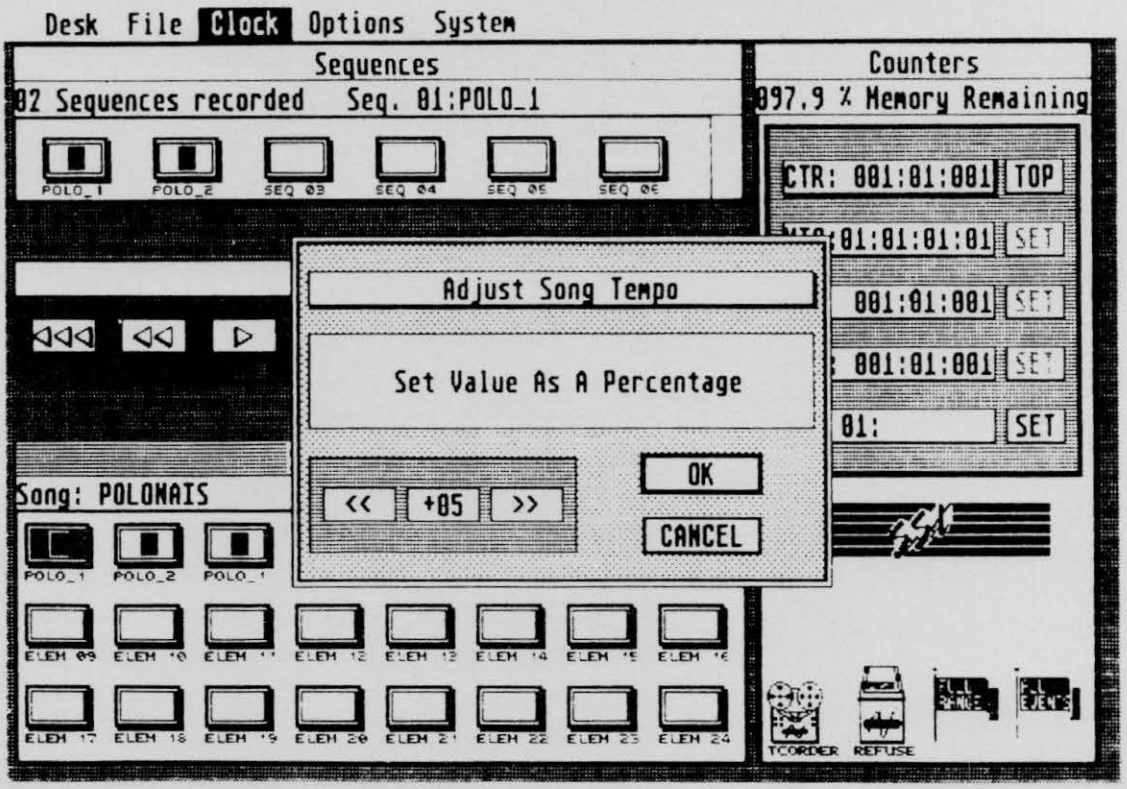

Fig. 15 - SuperSequencer ST: ADJUST SONG TEMPO DIALOG

Adjust Tempo

This selection is a unique SuperSequencer feature which allows you to adjust the Tempo of the entire Song (either faster or slower) by a percentage of its current value. This command does not change the Tempos (tempi) of the Sequences themselves (if you double-click on the Sequence icon in the Sequences window to see the Sequence Information Dialog, you can see that the Tempo value has not been altered). "Adjust Tempo..." is intended to allow you to speed up or slow down your entire Song as a whole without having to re-set the Tempos for all the Sequences used in the Song. It applies to Song Playback only and of course to the Internal Clock setting only. This command is very convenient when you need to lengthen or shorten a Song to fit in a specific length of time. This Tempo Adjust value can be adjusted during playback by using the cursor right and cursor left keys (see Real Time Playback Controls discussion below).

Seam Manager...

This selection is identical to the one in Sequence Mode with the same menu label (see Chapter Five).

OPTIONS MENU

Sequence Mode [Esc]

Click on "Sequence Mode..." to return to Sequence Mode. Alternatively, press the Escape key to return to Sequence Mode.

Transpose Song...

This selection allows you to assign a Transpose value to the entire Song. The Transpose value will be added to the individual Element Transposes. If, for example, one of your Song Elements is set to be Transposed up a perfect fifth (up seven semitones) and you set the Song Transpose to -2 (down two semitones), that Song Element will play its Sequence a perfect fourth above (7 - 2 = 5 semitones up) where it was recorded.

To Transpose the Song, click on "Transpose Song...". Use the Mouse to select the number of half steps up or down you would like to Transpose the Song. This Transpose does NOT affect any recorded Sequence data.

Omni Off/All Chns... [o]

This selection is identical to the one in Sequence Mode with the same menu label (see Chapter Six).

Quiet!/All Chns... [a]

This selection is identical to the one in Sequence Mode with the same menu label (see Chapter Six).

Send Exit Data... [z]

This selection is identical to the one in Sequence Mode with the same menu label (see Chapter Six). As in Sequence Mode, the selected Exit Data will be sent whenever you exit Song Playback (or Lead Track Record).

Lead Track...

SuperSequencer allows you to Record a separate Lead (or "Solo") Track which can run the entire length of your Song. This allows you to Record a melody or drum track, for instance, AFTER you have constructed your complete Song.

To Record the Lead Track, enter Song Mode, construct your Song, and click on the Record icon (or press the SLASH "/" key on your Atari keyboard). You will see the by now familiar message "RECORD ON! - Press Space Bar To STOP". Record a Track the entire length of the Song. When Recording the Lead Track in Song Mode, you must Record the whole Track in one pass; if you attempt to re-Record the Lead Track, the entire previous Lead Track will be Erased. ANY TIME you Record in Song Mode, you will be Recording the Lead Track.

If you wish to Edit the Lead Track, return to Sequence Mode and select the Tracorder. Now pull down the System Menu in Sequence Mode. If you have recorded a Lead Track you will now see the "Retrieve Lead Track" selection at the bottom of the Menu enabled. If you Click on this selection the Lead Track will be moved to Track 24 of the Tracorder where it can now be edited like any other Track in a Sequence. ANY DATA PREVIOUSLY IN TRACK 24 OF THE TRACORDER WILL BE LOST!

IMPORTANT: In Sequence Mode if the Tracorder is not selected or the Lead Track is not recorded the "Retrieve Lead Track" selection in the System Menu will be disabled (grey).

If you now select Track 24 of the Tracorder you can Edit the Lead Track just like any other Track in SuperSequencer (Quantize, Transpose, Punch, etc.). After performing the desired edits YOU MUST REINSTALL THE LEAD TRACK OR YOU WILL NOT HEAR IT PLAY DURING SONG PLAYBACK. To reinstall the Lead Track (after editing) be sure the desired Track is in Track 24 of the Tracorder. Now pull down the System Menu (in Sequence Mode of course) and notice that the "Install Lead Track" selection is now enabled. Click on it and the Lead Track in Track 24 will be moved into the Lead Track. You will notice Track 24 of the Tracorder is now unrecorded. ANY DATA PREVIOUSLY IN THE LEAD TRACK WILL BE LOST!

IMPORTANT: In Sequence Mode if the Tracorder is not selected or if Track 24 of the Tracorder is unrecorded the "Install Lead Track" selection in the System Menu will be disabled (grey).

Multiple Lead Tracks can be created by Recording the first one in Song Mode, exiting to Sequence Mode, retrieve the Lead Track, and Bounce it to an empty Track in the Tracorder. Then return to Song Mode, Record another Lead Track, return to Sequence Mode, again retrieve the new Lead Track and bounce it to an empty Track in the Tracorder, etc. You should remember, however, that the ONLY Lead Track you will hear during Song Playback is the one last recorded or installed as the Lead Track. When you have all the Lead Tracks recorded, bounce all of the various Lead Tracks in the Tracorder together and bounce them into Track 24 of the Tracorder. Next perform the "Install Lead Track" in the System Menu. Now all the Lead Tracks will be played during Song Playback.

If you re-structure your Song after you have Recorded a Lead Track, the new Song structure may or may not match up with the Lead Track you have Recorded. Perhaps you can Edit the Lead Track (as Track 24 of the Tracorder) to conform to your new Song structure, or perhaps you will have to re-Record the Lead Track in its entirety. It's up to you to make the Lead Track follow the Song structure - SuperSequencer doesn't keep track of your Song structure edits.

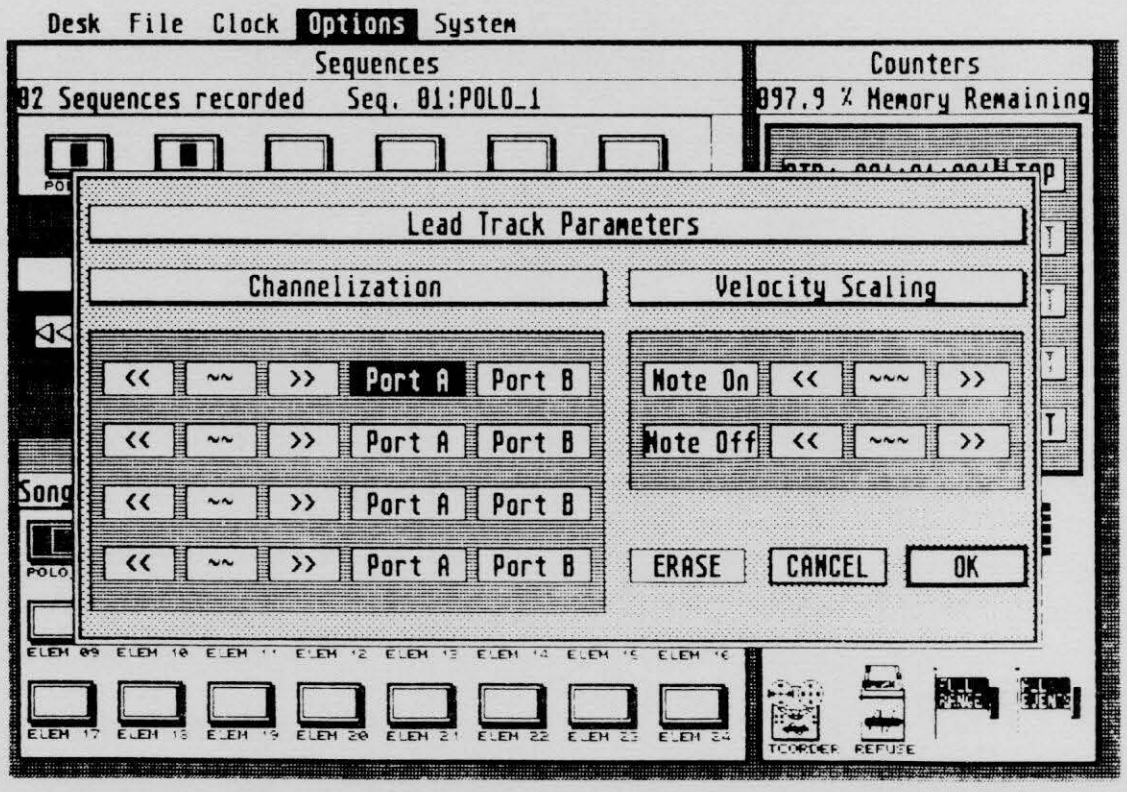

Fig. 16 - SuperSequencer ST: LEAD TRACK PARAMETERS DIALOG

Click on "Lead Track..." in the Options Menu to set the Channelization and Velocity Scaling for the Lead Track. This dialog is quite similar to the Track Name, Channelization, and Velocity dialog in Sequence Mode (see Chapter 1). Lead Tracks cannot be named but other than that, this dialog works exactly like its Sequence Mode counterpart. The one difference is that this Dialog contains an "ERASE" button which allows you to manually Erase the Lead Track in Song Mode. When you have set the Channelization and Velocity Scaling that you want for the Lead Track, click on OK (or press RETURN on your ST keyboard).

To mute and unmute the Lead Track, press "m", "33", and RETURN on your Atari keyboard at any time (in Song Mode).

If you Transpose a Song, the Lead Track will NOT be Transposed along with the Song. If you wish to Transpose the Lead Track as well, return to Sequence Mode, select the Tracorder, retrieve the Lead Track (see Lead Track discussion above) and Transpose Track 24 (now the Lead Track) by the same amount that you Transposed the Song. BE SURE that the Full Range and All Events flags are both ON, and Transpose Track 24. After this remember to reinstall the Lead Track (again see Lead Track discussion above).

View MIDI...[v]

This selection is identical to the one in Sequence Mode with the same menu label (see Chapter Six).

Track Info... [t]

This selection is identical to the one in Sequence Mode with the same menu label (see Chapter Six). In Song Mode, Track Info is shown for the Sequence specified in the currently selected element (or the last Sequence selected in the "Sequences" window, if that window is selected).

SYSTEM MENU

All selections on the System Menu are duplicates of the identical selections in Sequence Mode (see Chapter Seven).

Adding Repeats [F3]

During playback of a Song the number of times the Element currently selected will be repeated can be changed during Song playback. To increase the number of repeats for a given Element wait till the desired Element is playing and press the "F3" key. You will see the number of repeats remaining displayed on the screen increment by one each time "F3" is pressed. IMPORTANT: When you use F3 to increment the number of repeats of an element the repeat parameter for that Element is actually changed. So if you press "F3" while playing an Element that has four repeats specified as its repeat parameter it will now have five as its repeat parameter.

Adjusting Song Tempo [Cursor Right & Cursor Left]

The Song Tempo Adjust described earlier in this Chapter can be changed during Song playback. This Tempo Adjust can be increased or decreased by pressing the cursor right or cursor left keys respectively on your cursor keypad. As discussed previously this Tempo Adjust effects the playback tempo of the entire Song by a percentage, i.e. all Elements will playback faster or slower. Changes of the Song Tempo Adjust during playback will be displayed as the changes are made. IMPORTANT: Changes made in the Song Tempo Adjust actually change the Tempo Adjust Parameter. If you don't want this parameter altered and you use the cursor keys during Song Playback you should remember to reset the Tempo Adjust Parameter after exiting playback.

Super Sequencer ST - Release 2.1

Overview

Please note:The enclosed "SST" Super Sequencer diskette is Version 2.0. This new version includes some significant new features and improvements. Our development team has just finished this latest release, and we have not yet had time to include the changes in the manual. So, please bear with us while we get the new manual printed. In the mean time, this document should help you use the enhancements in your SST.

We recommend that you read this document twice. Scan it briefly before attempting to read the manual, since some portions of the manual do not reflect the latest version of the software. Then, after reading the manual, you should thoroughly read this document again.

One of the most significant enhancements to SST 2.0 is the integrated event editor. This enables you to perform all program functions, including individual event editing, without having to change disks.

Another enhancement to SST 2.0 is that the copy protection has been removed. You no longer require the 'key' to use the program. You can make backup copies to your hearts content, use the program from a hard disk, or virtually anything else that can be done with a typical GEM program.

Please, do not give copies of this software or documentation to anyone.

Finally, if you have any information about an individual, user's group or bulletin board system that is illegally distributing our copyrighted software please notify us at the address below. You may contact us anonymously, or we will keep your identity confidential.

Sonus Corporation
21430 Strathern, Suite H
Canoga Park, CA 91304

The Event Editor

The manual describes a program called EDITOR.PRG, that is contained on a separate disk from your SST program. This disk is **no longer necessary** because the features of the EDITOR program are now included on the same disk as the SST program.

To get to the Event Editor you should first select the track you wish to edit (by clicking on the track icon, or using the and keys), then select Event Editor from the Edit menu. The track you select may be either recorded or unrecorded, since the Event Editor will allow you to create tracks from scratch WITHOUT THE NEED FOR A MIDI KEYBOARD.

The Event Editor Dialog Box

The Event Editor is not really a separate program mode, like Song Mode. It is just a simple dialog box. But, it is probably the most powerful dialog box in SST. It certainly required more programming than any other dialog box!

When you select Event Editor from the Edit menu you will see a dialog box like the one in Figure 1. (The figures are at the back of this document.)

A quick glance over the dialog box reveals four distinct sections. The biggest section is a rather large box with some title boxes on top of it. The title boxes contain words like 'Event' and 'Ch'. The large box may contain some text, if the track you selected was recorded, or it may be empty. At the right side of the box is a control that closely resembles the sliders on the side of a GEM window. This resemblance is no accident, as these controls work very much like window sliders. We will call this big box the 'window, because it has controls that work like a GEM window, and because we had to call it something.

To the right of the window is a box, filled with color (or gray, for you monochrome folks) and titled 'Mode'. For the sake of completeness, we will refer to this box as the mode box. Inside this box are three buttons marked Edit, Insert, and Delete. For the present time please refrain from twiddling with these buttons until we can adequately describe how they work.

Below the mode box is a box titled 'Sound'. We will call this box the sound box. There are two buttons inside the sound box, marked ON and OFF. As you might have reasoned, these buttons turn the sound function on and off. But, what is the sound function? Don't touch that dial, folks! We will get to all these things in good time.

Next, beneath the sound box, is a box we call the window box. Do not confuse the window box with the actual window. The two buttons in the window box, Print and Play, perform some key functions which will be described in detail, when we get to that point.

Finally, below the window (not the window box) are four buttons containing the 'less than' and 'greater than' symbols ('<' and '>'). These buttons are used for changing some selected values, as you will see.

Initially, the information displayed in the window is calculated from the actual recorded track data. But, as you change these values on the screen to perform your edits only the information on the screen is going to be changed,the actual recorded data is not affected.

The Event Editor will let you change any value of any event on the screen without actually changing the recorded data. Then, when you are happy with what you have done, you can simply click on a button (the Edit button, in this case) and the editing and reshuffling will be done all at once, for all of the events currently in the window. Once you have played with this a little you will see how much faster it really is.

So, the information in the window represents the recorded data only until you change some parameter(s). And, when you click on the Edit button, the changes are made permanent in the recorded track all at once. After you have clicked on the Edit button, and the editing and reshuffling is complete, the window will once again be updated to reflect the recorded data. This brings you back to square one, ready to edit something else.

What Is An Event?

When you press a key on your MIDI keyboard a lot of things happen. Of course, if your keyboard has a built-in synthesizer, sound comes out of it. But, more important for our purposes, MIDI data comes out of it as well. In fact, at least 30 bits of MIDI data come racing out of the MIDI OUT connector at the respectable rate of over 30 thousand bits per second. Some quick work with a pocket calculator reveals that, theoretically, you could push over a

your keyboard.

Well, a thousand notes per second is not really realistic. Because, when you release that key there will be at least another 30 bits of data transmitted. And, if your keyboard is touch sensitive, there could be a whole lot more data sent as well.

In MIDI terminology these little packets of data are called MIDI messages. These messages are constructed according to strict rules. The rules were designed by the International MIDI Association, which is an industry accepted 'governing body' when it comes to MIDI standards. Manufacturers of MIDI equipment will follow these standards in order to guarantee that their equipment will work with equipment from other manufacturers.

Now, lets assume that your Atari ST is at the receivingend of the MIDI cable, and that you are running SST in record mode. After you press that keyboard key, and those bits have been received by the computer, SST begins to do its work. Before it does anything else, SST will assign a time to the message. This time comes from a timer inside your computer that is controlled by SST according to the tempo you select. This is called 'time stamping', and virtually every sequencer performs this operation. At this point a transformation has taken place. The MIDI data is no longer just a simple message. It is now an event, since it has an assigned place in time. SST can now use this time stamp as a reference, so that it will know when to transmit this event during playback.

Actually, the process of recording your MIDI data is a good deal more complex than we have represented here, but this gives you a general overview of whats going on. When you use the Event Editor you are simply making adjustments to the associated time stamp.

What Kind Of Events Can SST Record?

The best way to answer this question is to cover each type of event as it will be displayed by the Event Editor.

Note Events

Your MIDI keyboard will send one message when you press a key, and another when you release it. Each message, note-on and note-off, carries four pieces of information.

First, the message contains information that identifies the type of message as a note-on or a note-off message.

Second, a MIDI channel is specified. The channel determines which MIDI devices will respond to the message. MIDI provides for up to sixteen channels for each MIDI port. SST supports two MIDI ports, and up to 32 MIDI channels. On most synthesizers you can select the MIDI channel it will respond to when receiving information. On most keyboards you can also specify the channel used for outgoing MIDI data.

Third, the specific note being turned on or off is identified. MIDI provides for a range of 128 notes.

Finally, a velocity value is given. On keyboards equipped with velocity sensors this value would indicate either how fast the key was pressed or released, depending on whether a note-on or note-off message was transmitted. Many inexpensive keyboards do not have velocity sensors for note- on messages, and very few keyboards have note-off velocity sensors. These keyboards will usually send some intermediate value for velocity, such as 64. In any cluded in the message. A note-off velocity valuemay range from 0 to 127, but a note-on velocity value can only go as low as 1. This is due to a provision in the MIDI standard that allows a note-on message with a velocity value of zero to be interpreted as if it were a note-off message. By transmitting note-on and note-off messages as if both were note-on messages allows for a special technique, called 'running status'. 'Running status' allows MIDI note information to be sent with fewer bits, reducing the time required to send the information.

When SST displays note events in the Event Editor it performs some of preliminary work and calculations for you. Look at Figure Two (in the back of this document) while we describe how note events are displayed.

In the 'Event' column you will see the word 'Note'. Even though a MIDI note really consists of two MIDI messages (note-on and note-off) the Event Editor displays them as one event. After all, a musician does not think about a note as two operations performed at different times, but as a single operation with a specific duration.

In the 'Ch' column is displayed the MIDI channel of the note. This will not necessarily be one of the channels you have set in the Channilization, Velocity Scaling, and Track Name dialog box. This is the channel contained in the MIDI message when it was recorded.

In the 'Time' column is a time value, displayed in the familiar CTR counter format. The bar, beat, and pulse displayed here will vary according to the time signature you have selected for this sequence. Essentially, this value is the previously described time stamp of the note-on message.

In the 'Valu' column you will find the note pitch, given as the specific

note within the octave, followed by the octave number.

In the 'One' column you will see the velocity of the note-on message, also referred to as the attack velocity.

In the 'Two' column is the velocity of the note-off message, also called he release velocity.

In the 'Duration' column is a value representing the length of this note, in beats and pulses. As always, the size of a beat depends of the selected time signature of the sequence. Since only note events have a duration, this column is only used for notes.

Poly Key Pressure Events

This is one of the two varieties of aftertouch supported by MIDI. Aftertouch is the effect you obtain when a key is 'squeezed' or jiggled after initially being pressed. Many less expensive keyboards do not offer any form of aftertouch, as the sensors required can add considerably to the cost of the keyboard. Of the keyboards that do offer aftertouch, only a few offer this particular type.

Keyboards that feature any form of aftertouch have a special pressure sensor under each key. As the note is being played the pressure on the key can be varied to create a continously variable effect. Exactly how aftertouch will affect the timbre of the synthesizer sound will depend entirely on the programming of the synthesizer. Using aftertouch to control modulation is a common application.

Although the pressure sensors are somewhat expensive, the electronics required to convert these pressure measurements into digital form for MIDI transmission are even more expensive. Poly Key Pressure requires a separate electronic circuit for each key on the keyboard. This allows you to control the timbre of each note being played, independent of any other notes being played, simply by pressing harder or softer. Being able to control each note independantly makes this effect costly to implement, and is why it is less common than Channel Pressure aftertouch. (We will get into Channel Pressure in a few pages. Bear with us.)

Poly Key Pressure messages contain an identifier, and MIDI channel, as note events do. They also contain a value which specifies the specific key being pressed. This value is the same as the note value for that key. Finally, they contain a pressure value, indicating how hard that key is being pressed.

In Figure Two you will see a typical Poly Key Pressure event, shown as 'PLYKEY' in the 'Event' column. The values in the 'Ch' and 'Time' columns have the same meaning as they do for note events. In the 'Valu' column is displayed the note pitch of the key that is being pressed. In the 'One' column is displayed the pressure value.

Controller Events

These events are used for a variety of MIDI controllers, such as modulation wheel and breath controller. A controller message contains four pieces of information.

First is the event type identifier. This tells the receiving MIDI device that 'I am a controller message'.

Second is the MIDI channel, which serves the same purpose as previously described for the note events.

The third piece of information is the controller number. MIDI allows for 128 controller numbers, but only values from 0 to 121 are actually used for controllers. The values from 122 to 127 are reserved for a class of messages called 'MIDI Mode messages'. These mode messages are for things like Omni Off, and Poly On, etc. We won't get into detail about these messages, however, since SST processes them as soon as they are received, instead of recording them. We will concentrate only on those controllers between 0 and 121.

Finally, the controller value is contained in the message. This is the value at which the previously described controller is being set. For example, if controller number 1 (modulation wheel) were given a value of zero then that controller would essentially be turned off. Conversely, a value of 127 would be fully on. Of course, the meaning of a specific controller value depends entirely on which controller is being addressed, and also on how a particular synth would respond to that value. Herein lies the possibilities for a great deal of fun experimentation.

As usual, the Event Editor will try to process the controller events as much as possible when displaying them. For instance,how many people know what controller number 64 represents? With SST you don't need to know! There are nine different MIDI controllers (the most common ones) that the Event Editor will identify for you. These are shown in Figure Three (at the back of this document). The rest are simply displayed as 'CONTLR' by the Event Editor.

The MIDI channel and time are displayed as previously described for note events. The 'Valu' column will display the controller number, which will usually correspond to the type of controller event identified in the 'Event' column. The 'One' column will show the value that controller is being set to.

ProgramChange Events

Also commonly called Patch Change events. These messages tell a synthesizer or sound module to select a different sound program. For example, a particular Program Change message might instruct a synthesizer to select program number 27, which could be a string sound, or maybe a horn sound. Exactly which sound you get from a particular Program Change message will depend entirely on the synthesizer that receives it, and what sounds you have in that synthesizer.

Program Change messages contain an identifier, and MIDI channel, just like the events previously described. They also contain a program number. As you can see, Program Change events are some of the simpler types of MIDI messages.

Figure Two (in the back of this document) shows a typical Program Change event, in Event Editor format. The Program Change event is identified by the word 'PATCH' in the 'Event' column. The 'Ch' and 'Time' are the same as described for other events. In the 'Valu' column is the program number.

Although MIDI allows for program numbers from 0 to 127, many synthesizers do not have this many programs available. Some synthesizers will simply ignore a program change number that is out of its range. Others will 'transpose' the number to fit within the desired range.

Channel Pressure Events

We mentioned these briefly when we were talking about Poly Key Pressure. Channel Pressure is the most common form of aftertouch. It provides the same basic effects capability as Poly Key Pressure, with each key on the keyboard having its own sensor, but only one set of electronics is provided for converting the pressure value into digital form. This means that, no matter how hard you press any individual key, the one that is being pressed the hardest will determine the amount of aftertouch for the entire keyboard.

Channel Pressure events contain the same types of information as Poly Key Pressure events, except that the pitch of the key being pressed is no longer provided. This seems to make some sense, since it doesn't really matter which key is pressed.

Referring to Figure Two , we can see a typical Channel Pressure event. They are identified by the word 'AFTUCH' in the 'Event' column. We already know what the values in the 'Ch' and 'Time' columns mean. The 'Valu' column shows the pressure value.

Pitch Bend Events

If you have ever played with the pitch wheel on your synthesizer, then you know where these messages come from. Pitch Bend events will change the pitch of notes being played.

You may be asking yourself 'If I wanted to change the pitch of a note, wouldn't I just play a different note?'. Well, you might just do that, but what if you wanted a note that was somewhere between C# and D? Or if you wanted to use a scale that was tempered differently than anything you could get from the keyboard alone? Or you wanted a smooth glissando over an octave on five notes at once? Pitch Bend to the rescue!

Beside the already described identifier and MIDI channel, a Pitch Bend event contains TWO numbers to specify the amount of pitch bend. Each number can vary between 0 and 127. Now, that should provide enough resolution to make anyones microtonal fantasies come true.

Most synthesizers equipped with pitch wheels do not resolve to every value in that range. In fact, many always set the least significant of the two numbers to the same value, essentially reducing the range to 128 values. And, at the other end, many synthesizers and sound modules that can respond to pitch bend will alter pitch in steps much larger than the resolution pitch bend provides. This means a whole set of pitch bend values might actually cause the same amount of real pitch shift in the synthesizer.

A Pitch Bend event can be identified by the word 'P BEND' in the 'Event' column (See Figure 2). We know what 'Ch' and 'Time' are for. 'Valu' is the least significant of the two pitch bend numbers, while 'One' is the most significant. You might be interested in knowing that values of zero and 64, respectively, usually represent the pitch wheel at its centered, or resting position.

A close examination of your synthesizer or sound module might reveal that the pitch bend range can be programmed. This would allow you to adjust how much actual pitch shift you get over the full range of pitch bend messages. Don't be too disappointed, however, if your synth does not have this feature. There are some synths which do not respond to pitch bend.

System Exclusive Events

These are the most versatile of all the events SST will record. Practically anything can be done with a System Exclusive message. In fact, the International MIDI Association allows MIDI equipment manufacturers to put practically anything they want in a System Exclusive message. Each manufacturer has his own idea of what kind of information to put in these mes-

Here is a quick review:

Technique 1 - SLOW

Use slider up/down buttons to scroll through the track, one event at a time.

Technique 2 - MEDIUM

Set CTR counter to desired position, and call up the Event Editor. (You can use the TAB key, to get to the Event Editor, also. I guess you would call this approach medium fast.)

Technique 3 - FAST

Use the slider to jump around in the track at turbo speed.

Performing The Edit

At this point we know how to zero in on a particular event, or at least get in the general vacinity. Now, lets do some editing.

My most common mistake is not playing my keyboard accurately. I always end up with some extra notes that need to be excised. This is easy with the Event Editor. Once you have found the offending note (or other MIDI event) move the mouse pointer to any text field in the event. Click the left mouse button and the text field will become highlighted. Now, point and click on the 'Delete' button. The unwanted event will be extracted, and the window will be updated to reflect the changed track.

NOTE - DELETE operations will remove the event from the track, and update the window to reflect the actual track data after the operation is performed. Any events in the window which have been altered but not made permanent with the Edit button will be restored to their original condition.

After bad notes, my next most common mistake is playing the wrong note. For instance, B instead of Bb. To correct this kind of error just select the text field to be edited by click the mouse button on it. In the case of a wrong note, you would click on the text in the Valu column. The text field will be highlighted. It might be a good time to mention that, although you can select the text in the Event column, you can't change this text directly.

Now, use the four big buttons at the bottom of the dialog box to change the text field to the proper value. The < and > buttons will change the text in big steps. In the case of time and duration, these buttons will add or subtract a beat. In the case of note pitch they will add or subtract an octave. For velocities, or other values like controllers, they will add or subtract ten. The < and > buttons will change the text by one increment.

At this point, only the text in the window has been changed. The track still has the same information that it had before. To make this change permanent click on the Edit button. You can change as many parameters in the window as you like before clicking on the Edit button. Please note, however, that Delete, Insert, and the slider controls will restore the actual contents of the track into the window. Be sure to click on the Edit button to save your changes before you use these other controls.

A quick note about editing the time fields. You can change the time of an event to anything you would like, however, when you click on the Edit button the event might disappear from the window. This will occur if you adjust the time far enough to make the event occur at a point in the track that is no longer visible in the window. DON'T WORRY! Your event is still there, you just have to adjust the window to the point in the track where the event was moved to.

Inserting an event is easy, also. Find the approximate location (in time) where you would like your event inserted. Click on any field of any event at the same approximate time. Now, click on the Insert button. A small box will appear with buttons for each event type. Click on the button that corresponds to the kind of event you wish to insert. The Event Editor will insert a default event at that location in time. For example, if you chose to insert a note then the Event Editor will insert a middle C with midrange velocity on MIDI channel 01. Of course, you can quickly change any parameter of the event you insert using the editing technique described above.

Remember, before you can insert a new event you must choose where it will go. You must select a text field in an event at the time where you want the new event inserted. The only exception to this is in the case of an empty track. If the track is empty just click on the Insert button.

NOTE - INSERT operations will insert the new event in the track, and update the window to reflect the actual track data after the operation is performed. Any events in the window which have been altered but not made permanent with the Edit button will be restored to their original condition.

Play around with these three functions and get used to how they work. Once you have mastered them you will find the Event Editor to be an invaluable tool in your sequencing. The Event Editor can be used for quick and easy microsurgery on your recorded music!

Special Features

Sometimes, even seeing all of the information about a particular recorded event is not enough to identify it. For this reason we have provided a 'sound' function. Remember those two buttons marked ON and OFF? Click on the

one marked ON. From this point forward, anytime you select a text field in an event, or anytime you adjust a field, the Event Editor will play that event so that you can hear the effect.

Give it a shot! Turn on the sound function and select a field in a note event, like the pitch or velocity. Now, use the adjust buttons at the bottom of the dialog box. (Don't worry, you don't have to click on Edit when you are done.) Hear the effect? You can see that this could get to be lots of fun.

You might wonder why you would ever want to turn the sound function off, so I'll satisfy your curiosity and give you some examples. If you start dialing through controller numbers in a controller event you will effectively set every controller whose number you dial through to the same value. For example, if you had a modulation wheel event , which is controller number 001, and you wanted to change it to a MIDI volume event, which is controller number 007, you could accidently change controllers 002 through 006 to the same value while dialing the numbers.

Please note that the sound function will play events to the channel shown in the 'Ch' column. This may not necessarily be the same channel(s) you set in the Channelization, Velocity Scaling and Track Name dialog box.

An extension of the sound function is the play function. Essentially, clicking on the Play button will cause the Event Editor to play every event currently in the window. While each event is played a little pointer will appear to the right of the event. The pointer will be visible as long as the event is playing. Because of the visible pointers the playback will probably not be at the correct tempo, but it will be metrically accurate. This means that an eighth note will be twice as long as a sixteenth note. You can stop the playback anytime by clicking the RIGHT mouse button.

Finally, to get a quick written record of any events in a track you can click on the Print button. The Event Editor will send a copy of the contents of the window to your printer. It will also jot down the sequence and track names, as well as the time and date. You can set the time and date using your control panel desk accessory. The printed copies are made using text only, so a daisy wheel or other letter- quality printer will work OK.

Thanks For Your Support!

As always, we greatly appreciate your support, and look forward to providing you with more enhancements, and new products. Enjoy!

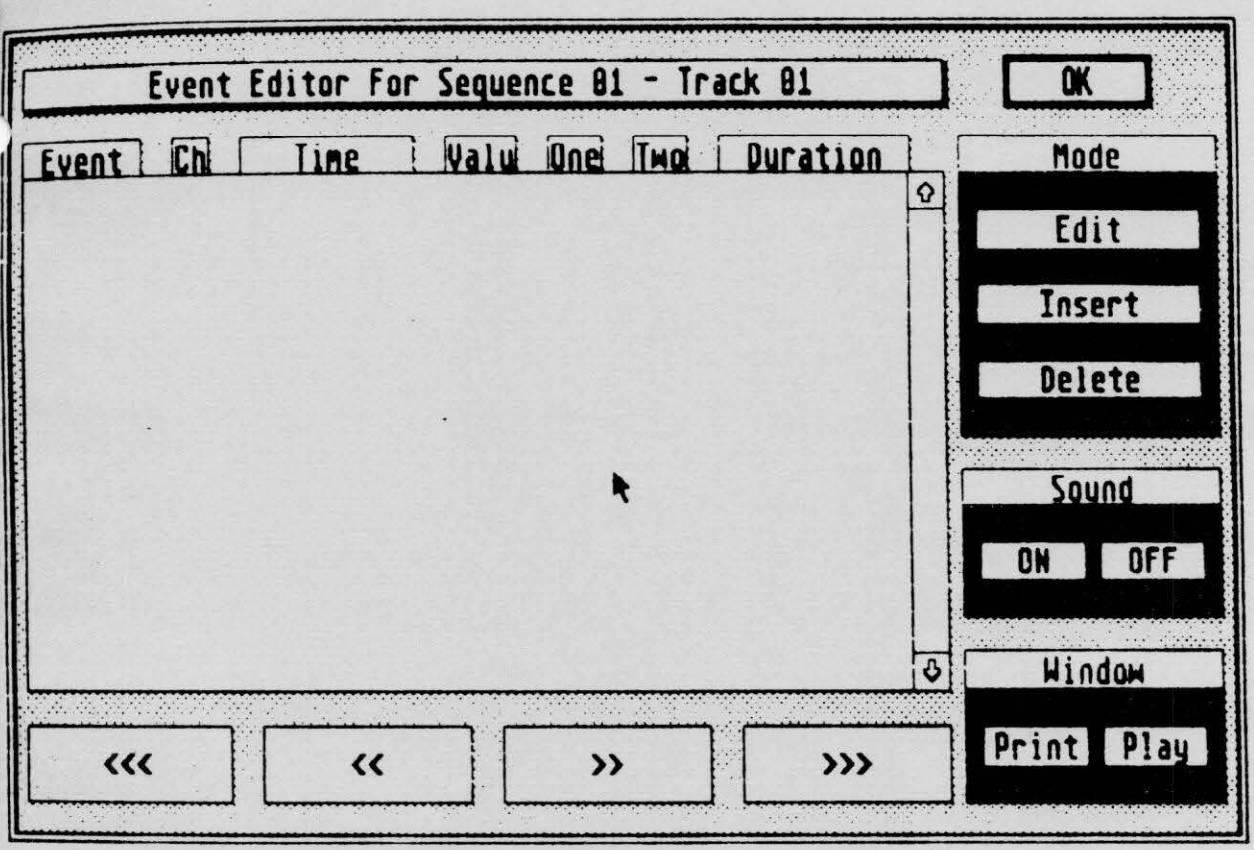

Figure One - The Event Editor

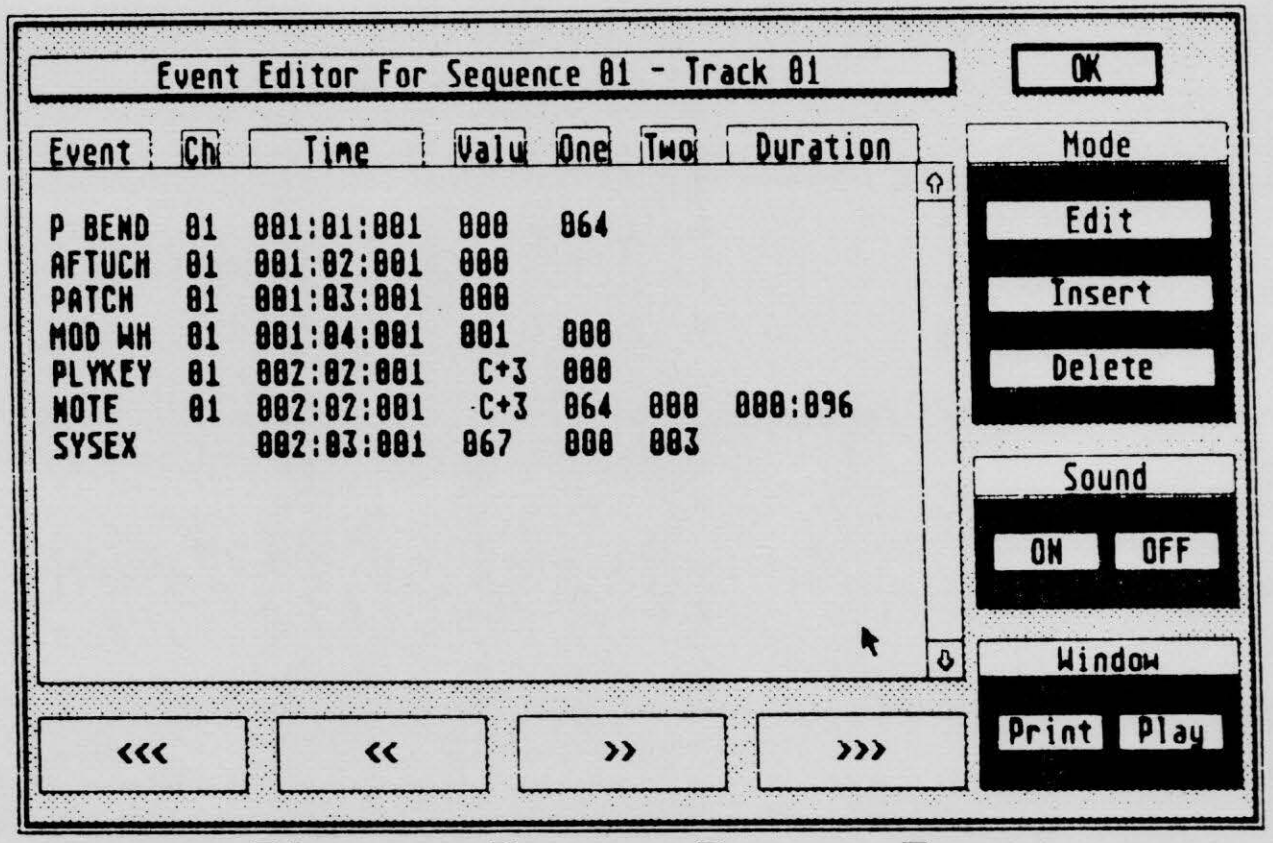

Figure Two - Event Types

APPENDIX A - MIDI CONTROLLER NUMBERS

The following is a list of all MIDI Controller Numbers which have been assigned as of this writing (May, 1987). Unreserved numbers have been left blank.

ØØ		32-63:	LSB for values Ø-31
Ø1	Modulation Wheel/Lever	33	
Ø2	Breath Controller	34	
Ø3		35	
Ø4	Foot Controller	36	
Ø5	Portamento Time	37	
Ø6	Data Entry MSB	38	Data Entry LSB
Ø7	Main Volume	39	
Ø8	Balance	4Ø	
Ø9		41	
1Ø	Pan	42	
11	Expression Controller	43	
12		44	
13		45	
14		46	
15		47	
16	General Purpose Ctl #1	48	
17	General Purpose Ctl #2	49	
18	General Purpose Ctl #3	5Ø	
19	General Purpose Ctl #4	51	
2Ø		52	
21		53	
22		54	
23		55	
24		56	
25		57	
26		58	
27		59	
28		6Ø	
29		61	
3Ø		62	
31		63	

64	Damper Pedal (Sustain)*	96	Data Increment
65	Portamento (on/off)	97	Data Decrement
66	Sostenuto	98	Non-Registered Parameter Number LSB
67	Soft Pedal	99	Non-Registered Parameter Number MSB
68		100	Registered Parameter Number LSB
69	Hold 2	101	Registered Parameter Number MSB
70		102	
71		103	
72		104	
73		105	
74		106	
75		107	
76		108	
77		109	
78		110	
79		111	
80	General Purpose Ctl #5	112	
81	General Purpose Ctl #6	113	
82	General Purpose Ctl #7	114	
83	General Purpose Ctl #8	115	
84		116	
85		117	
86		118	
87		119	
88		120	
89		121	
90		122	Local Control On/Off
91		123	All Notes Off
92	Tremolo Depth	124	Omni Mode Off
93	Chorus Depth	125	Omni Mode On
94	Celeste (Detune) Depth	126	Mono Mode On
95	Phaser Depth	127	Poly Mode On

* Sustain Pedal is sometimes called Hold #1

APPENDIX B - MIDI PROGRAM CHANGES

Some synthesizers, such as the Yamaha DX7, require a certain small amount of time to execute a PROGRAM CHANGE. If the synth is playing as the PROGRAM CHANGE is called, a glitch may be heard from the audio output of the synthesizer. To avoid this, you should ensure that your PROGRAM CHANGES occur during rests (or silences) in the track. At most TEMPO's, an eighth-note of rest is sufficient for a DX7 to execute a PROGRAM CHANGE, but let your ear be the judge.

Remember that PROGRAM CHANGES, like any other track data, will be output over the MIDI Channel to which their track's output is assigned. This way, you can have your different synths changing sounds at different times, if your music requires it.

The DX7 considers its internal memory to be programs 1-32 and its cartridge memory to be programs 33-64. This whole range corresponds to MIDI Program Changes Ø-63, or programs ØØ-63 on an Oberheim Matrix-6, or programs 1-1 to 8-8 on a Roland Juno-1Ø6. You can see that if you are recording a PROGRAM CHANGE from one synthesizer on a track which is intended to be played back on a different synthesizer, you may have to do a little calculation to get the result you want.

The following table should be of some help. The MIDI PROGRAM CHANGE in the left column sent to a synth in another column will result in the corresponding program. Of course the MIDI Program Change numbers work fine for those synthesizers which number their programs from ØØ to 99 (e.g., some Moog, Oberheim, and Sequential units).

"DX7" - stands for Yamaha DX7. The "c" in front of the later program numbers refers to the cartridge memory. If no cartridge is present, the PROGRAM CHANGES will "wrap around" to the corresponding number in the DX7's internal memory.

"Rol" - stands for "Roland" and refers to those synthesizers which number their patches in "banks" of eight (e.g., Roland and some Sequential units).

MIDI	DX7	Rol	MIDI	DX7	Rol
ØØ	1	1-1	16	17	3-1
Ø1	2	1-2	17	18	3-2
Ø2	3	1-3	18	19	3-3
Ø3	4	1-4	19	2Ø	3-4
Ø4	5	1-5	2Ø	21	3-5
Ø5	6	1-6	21	22	3-6
Ø6	7	1-7	22	23	3-7
Ø7	8	1-8	23	24	3-8
Ø8	9	2-1	24	25	4-1
Ø9	1Ø	2-2	25	26	4-2
1Ø	11	2-3	26	27	4-3
11	12	2-4	27	28	4-4
12	13	2-5	28	29	4-5
13	14	2-6	29	3Ø	4-6
14	15	2-7	3Ø	31	4-7
15	16	2-8	31	32	4-8

MIDI	DX7	Rol	MIDI	DX7	Rol
32	c 1	5-1	48	c17	7-1
33	c 2	5-2	49	c18	7-2
34	c 3	5-3	5Ø	c19	7-3
35	c 4	5-4	51	c2Ø	7-4
36	c 5	5-5	52	c21	7-5
37	c 6	5-6	53	c22	7-6
38	c 7	5-7	54	c23	7-7
39	c 8	5-8	55	c24	7-8
4Ø	c 9	6-1	56	c25	8-1
41	c1Ø	6-2	57	c26	8-2
42	c11	6-3	58	c27	8-3
43	c12	6-4	59	c28	8-4
44	c13	6-5	6Ø	c29	8-5
45	c14	6-6	61	c3Ø	8-6
46	c15	6-7	62	c31	8-7
47	c16	6-8	63	c32	8-8

MIDI Program Change Numbers 64 - 127 yield similar results for synths which have enough internal patch memory. Other Yamaha units which number their patches starting with number 1 simply "roll over" their banks of memory at different points. In the FBØ1, for example, numbers 1-48 correspond to MIDI P/C numbers Ø-47; the next bank runs from MIDI P/C number 48 to 95, the next bank starts at MIDI P/C number 96, etc. In the DX1ØØ, numbers 1 thru 24 correspond to MIDI P/C numbers Ø-23 and the second bank starts at MIDI P/C number 24, and so on. IMPORTANT: MIDI supports Program Change numbers Ø thru 127 ONLY, so if you have a synth with more than 128 patches in its internal memory, you can't access the ones past the 128th (Ø-127) one via MIDI; so there still are good (musical) uses for fingers.

APPENDIX C - PPQN EQUIVALENTS FOR COMMON RHYTHMIC VALUES

SuperSequencer operates at a constant PPQN (Pulses per Quarter-Note) of 192, even when synced to an external MIDI Clock source oper-ating at 24 PPQN. This gives you a high resolution recording capability, but means that, especially in Step Mode, the last three digits of the CTR counter may show you some numbers which need some translation. The table below shows the PPQN values for some of the more common rhythmic values; if you need other PPQN equivalents, get out your slide rule! The table represents one (quarter-note long) beat - notice all Pulse values are less than 192.

DUPLETS:

Note	Pulse Number															
QRTR:	Ø01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8th:	Ø01	-	-	-	-	-	-	-	Ø97	-	-	-	-	-	-	-
16th:	Ø01	-	-	-	Ø49	-	-	-	Ø97	-	-	-	145	-	-	-
32nd:	Ø01	-	Ø25	-	Ø49	-	Ø73	-	Ø97	-	121	-	145	-	169	-
64th:	Ø01	Ø13	Ø25	Ø37	Ø49	Ø61	Ø73	Ø85	Ø97	1Ø9	121	133	145	157	169	181

TRIPLETS: (Quarter-note Triplets need two quarters for the three triplets. They fall on Ø01 and 129 in the first quarter and on Ø65 in the second quarter.)

Note	Pulse Number											
8th:	Ø01	-	-	-	Ø65	-	-	-	129	-	-	-
16th:	Ø01	-	Ø33	-	Ø65	-	Ø97	-	129	-	161	-
32nd:	Ø01	Ø17	Ø33	Ø49	Ø65	Ø81	Ø97	113	129	145	161	177

APPENDIX D - DECIMAL/HEXADECIMAL EQUIVALENTS

The following table gives the decimal equivalents for the two hundred fifty-six values (Ø to 255) possible in one eight-bit byte of hexadecimal (base 16) notation. Most MIDI data values fall in the lower half (Ø to 127) of that range; MIDI "Status Bytes" are in the upper half.

Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex
ØØØ	ØØ	Ø32	2Ø	Ø64	4Ø	Ø96	6Ø	128	8Ø	16Ø	AØ	192	CØ	224	EØ
ØØ1	Ø1	Ø33	21	Ø65	41	Ø97	61	129	81	161	A1	193	C1	225	E1
ØØ2	Ø2	Ø34	22	Ø66	42	Ø98	62	13Ø	82	162	A2	194	C2	226	E2
ØØ3	Ø3	Ø35	23	Ø67	43	Ø99	63	131	83	163	A3	195	C3	227	E3
ØØ4	Ø4	Ø36	24	Ø68	44	1ØØ	64	132	84	164	A4	196	C4	228	E4
ØØ5	Ø5	Ø37	25	Ø69	45	1Ø1	65	133	85	165	A5	197	C5	229	E5
ØØ6	Ø6	Ø38	26	Ø7Ø	46	1Ø2	66	134	86	166	A6	198	C6	23Ø	E6
ØØ7	Ø7	Ø39	27	Ø71	47	1Ø3	67	135	87	167	A7	199	C7	231	E7
ØØ8	Ø8	Ø4Ø	28	Ø72	48	1Ø4	68	136	88	168	A8	2ØØ	C8	232	E8
ØØ9	Ø9	Ø41	29	Ø73	49	1Ø5	69	137	89	169	A9	2Ø1	C9	233	E9
Ø1Ø	ØA	Ø42	2A	Ø74	4A	1Ø6	6A	138	8A	17Ø	AA	2Ø2	CA	234	EA
Ø11	ØB	Ø43	2B	Ø75	4B	1Ø7	6B	139	8B	171	AB	2Ø3	CB	235	EB
Ø12	ØC	Ø44	2C	Ø76	4C	1Ø8	6C	14Ø	8C	172	AC	2Ø4	CC	236	EC
Ø13	ØD	Ø45	2D	Ø77	4D	1Ø9	6D	141	8D	173	AD	2Ø5	CD	237	ED
Ø14	ØE	Ø46	2E	Ø78	4E	11Ø	6E	142	8E	174	AE	2Ø6	CE	238	EE
Ø15	ØF	Ø47	2F	Ø79	4F	111	6F	143	8F	175	AF	2Ø7	CF	239	EF

Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex
Ø16	1Ø	Ø48	3Ø	Ø8Ø	5Ø	112	7Ø	144	9Ø	176	BØ	2Ø8	DØ	24Ø	FØ
Ø17	11	Ø49	31	Ø81	51	113	71	145	91	177	B1	2Ø9	D1	241	F1
Ø18	12	Ø5Ø	32	Ø82	52	114	72	146	92	178	B2	21Ø	D2	242	F2
Ø19	13	Ø51	33	Ø83	53	115	73	147	93	179	B3	211	D3	243	F3
Ø2Ø	14	Ø52	34	Ø84	54	116	74	148	94	18Ø	B4	212	D4	244	F4
Ø21	15	Ø53	35	Ø85	55	117	75	149	95	181	B5	213	D5	245	F5
Ø22	16	Ø54	36	Ø86	56	118	76	15Ø	96	182	B6	214	D6	246	F6
Ø23	17	Ø55	37	Ø87	57	119	77	151	97	183	B7	215	D7	247	F7
Ø24	18	Ø56	38	Ø88	58	12Ø	78	152	98	184	B8	216	D8	248	F8
Ø25	19	Ø57	39	Ø89	59	121	79	153	99	185	B9	217	D9	249	F9
Ø26	1A	Ø58	3A	Ø9Ø	5A	122	7A	154	9A	186	BA	218	DA	25Ø	FA
Ø27	1B	Ø59	3B	Ø91	5B	123	7B	155	9B	187	BB	219	DB	251	FB
Ø28	1C	Ø6Ø	3C	Ø92	5C	124	7C	156	9C	188	BC	22Ø	DC	252	FC
Ø29	1D	Ø61	3D	Ø93	5D	125	7D	157	9D	189	BD	221	DD	253	FD
Ø3Ø	1E	Ø62	3E	Ø94	5E	126	7E	158	9E	19Ø	BE	222	DE	254	FE
Ø31	1F	Ø63	3F	Ø95	5F	127	7F	159	9F	191	BF	223	DF	255	FF

APPENDIX E - KEYBOARD EQUIVALENTS

Virtually everything SuperSequencer can do can be done using the Mouse only. Many functions in SuperSequencer can also be accessed by pressing keys on the Atari ST keyboard. The following is a complete list of the computer keyboard equivalents active within SuperSequencer:

*	Captive play Thru
/	Record
SPACE BAR	Playback
Period (unSHIFTed ">")	Select Next Track
, (unSHIFTed "<")	Select Previous Track
> (SHIFTed)	Next Sequence or Song Element
< (SHIFTed)	Previous Sequence or Song Element
= (unSHIFTed "+")	Move CTR Counter Forward 1 Pulse
-	Move CTR Counter Backward 1 Pulse
+ (SHIFTed)	Move CTR Counter to Next Even Beat
_ (SHIFTed "-")	Move CTR Counter to Previous Even Beat
BACKSPACE	Move CTR Counter to Top of Sequence or Song
]	Move CTR Counter to Next Cue Point
[	Move CTR Counter to Previous Cue Point
} (SHIFTed "]")	Select Next Cue Point to SET
{ (SHIFTed "[")	Select Previous Cue Point to SET
a	Send All Notes Off over All Channels
A (SHIFTed)	In Song Mode Auto Mute Enable/Disable
c	Set Count-Off Values
d	MIDI Clock Out Enable/Disable
e	Filtered Edit Enable/Disable
E (SHIFTed)	Move CTR Counter to End of Sequence
f	Set Input Filters
F1 (Function key)	Exit Current Playback at End of Sequence or Song
F7 (Function key)	Manual Release of Clock Hold
l	Play Loop Enable/Disable
m	Mute Track
n	Metronome Enable/Disable
o	Send Omni Off/Poly On over All Channels
P (SHIFTed)	Live Punch
^p (Control "p")	Auto Punch Enable/Disable
q	Quantize
Q (SHIFTed)	Clear Memory
r	Range Edit Enable/Disable
s	Solo Track
S (SHIFTed)	Step Mode Enable/Disable
t	24-Track Info Display for Current Sequence
x	Play Through Enable/Disable (Rec/Play)
z	Send Exit Data
^z (Control "z")	Auto Zero Enable/Disable

Escape	Go from Song to Sequence Mode or Sequence to Song Mode
Cursor Right	During Playback/Record increases Tempo in both Song and Sequence Mode
Cursor Left	During Playback/Record decreases Tempo in both Song and Sequence Mode
F3	During Playback in Song Mode increases current Song Element's repeat number

The following keys are active during Step Mode Playback/Record:

**** (BACKSLASH)	Advance CTR Counter by Step Increment
= (unSHIFTed "+")	Advance CTR Counter by Pulse
+ (SHIFTed)	Advance CTR Counter to Next Even Beat
a	Auto/Manual Toggle
Q (SHIFTed)	Select Quarter-Note as Step Increment
E (SHIFTed)	Select Eighth-Note as Step Increment
S (SHIFTed)	Select Sixteenth-Note as Step Increment
T (SHIFTed)	Select Thirty-second-Note as Step Increment
Period (unSHIFTed ">")	Increase Step Increment by 1 Pulse
, (unSHIFTed "<")	Decrease Step Increment by 1 Pulse